

FLIGHT

& AIRCRAFT ENGINEER.

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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EDITORIAL COMMENT



EARLY in the present month an Air Conference—presumably an International official body—is to meet in Paris, composed of five delegates from France, Britain, Belgium, the United States and Italy respectively, in order to frame proposals to be submitted to the Peace Conference regarding the regulation of aerial navigation, air frontiers, and other cognate matters. We are bound to say that we feel relieved to know that the questions involved are to be discussed by such an international conference prior to the introduction of any suggested legislation at home, whether for the control of aviation within the confines of these islands or of extra-territorial navigation by air. It is impossible not to gather the impression that the tendency of our own authorities is to move in a direction which would, if persisted in, lead almost inevitably to the strangulation of a promising industry and to this country being left hopelessly behind in the race for aerial supremacy on the commercial side, whatever might happen in the matter of the undoubted military

How Far should State Control Go?

superiority we have achieved as a result of our efforts during the War. It may be that the interchange of opinions by the conference will lead to some modification in the point of view of our own authorities. We sincerely trust it may be so.

It is impossible on the eve of the discussion of legislation and regulation to govern aviation to dismiss from memory the position in which motoring and the motor industry were placed five-and-twenty years ago by the short-sighted Government policy of the day. When France and Germany were doing all they could to assist in the development of an infant locomotion, here enterprise and invention were choked by ineffably stupid laws which completely prevented the use on the highways of the motor vehicle, nor was it until other countries, realising far better than our own Government the potentialities of the self-propelled vehicle, had obtained a tremendous start that the disabilities were partially removed. Even to-day our motor laws are more repressive and taxation stands at a higher level than, we believe, is the case in any other civilised country. Nor is there, we fear, any better prospect before commercial aviation if the hide-bound bureaucrats are allowed to have their way. We are not at all of the opinion that all species of control by the State must disappear and aviation be given an absolutely free hand. On the contrary, we agree that a considerable measure of control and support is necessary as much in the interests of aviation itself as in that of the State. As a matter of fact, it is to the State that we have to look for a great deal of assistance in developing commercial aviation, and it is simple justice that the State should have the right to say, within limits, along what lines development shall proceed. But there certainly are limits beyond which control cannot go unless development is to be still-born. Already it is apparent that our own Government proposes to carry "control" to lengths which are not contemplated by that of France. We had an example of this the other day, when it was proposed to fly a passenger machine from Paris to London. The French Government was perfectly willing, but our own forbade it, until by the rather comic process of "militarising" the crew and passengers official susceptibilities were calmed and the flight authorised. It is really difficult for the ordinary person to see what difference the militarisation of the passengers could have made, and on the face of it the affair looks

to have been simply an instance of official crassitude under the circumstances. Now, if that is really typical of the general outlook on commercial aviation—and we regret to think that it is—and that outlook is allowed to stand, it is perfectly certain that history will repeat itself and the industry will be left behind in the race until the Government is simply forced, as it was in the case of motoring, to recognise hard facts and to remove the worst of the restrictions. By then the industry will have been set the task of making up a vast amount of leeway and it may never succeed in doing it.

Biting Off Too Much

The root cause of the tendency to undue restriction seems to be a too liberal interpretation by the officials of the Air Ministry of the powers conferred by its constituting Act of Parliament. A part of its function under that Act is the control of aerial navigation. The definition is a very loose one, which at the one end might be interpreted simply as a kind of watching brief and at the other into an absolute nationalisation of all aerial transport, civil and military, with, as the aeronautical correspondent of the *Telegraph* pointed out the other day, such other regulations as would make sport and private flying extremely difficult or even impossible. There is a mean between the two, which must be carefully ascertained and adopted, but the initial trouble we have to face is that the Air Ministry seems inclined to take the second extreme as its basis of faith. Therein it is, we are convinced, endeavouring to bite off more than it can usefully assimilate. The Ministry will have plenty to do for a very long time in carrying out the reconstruction of the R.A.F. and establishing it on a permanent peace footing. It will have to undertake all the aerial police work of the Empire and to control air traffic, civil and military. Doubtless a good deal of this control will be carried out jointly by an aerial commission appointed by the League of Nations—if that dream of the idealist should come true—in which case the Air Ministry may possibly have more attention to spare for other matters. That, however, by the way. We cannot ignore the fact that the Ministry has been made responsible by Parliament for the "control of civil aviation," and it is the literal interpretation which it places on its terms of reference, so to say, that will require watching. No-one connected with the industry has ever imagined that it was the intention of the State to interfere in matters which have hitherto been the preserve of the private individual and the care of private enterprise. Nor does the informed observer believe that the Air Ministry is competent to carry out all that it appears desirous of arrogating to itself. It would be strange if he did, inasmuch as the Ministry is the newest of the new Departments created during the war and is very much on its trial even now. Moreover, it is very doubtful if it carries the confidence of the public in its ability to administer and control all aviation. No Department has been the butt of so much criticism as the Air Department under its old name of Air Board or, latterly, as the Air Ministry. It may be true that at the end of the War we had built up a great superiority over the enemy, and even over our Allies, in aerial material and that this was achieved under the new Ministry, but it must not be forgotten, when these matters are discussed in cold blood, that it was done at an enormous cost and with

appalling waste. To be no more than just to the Ministry it must be said that its organisation even to-day is far from perfect and that the whole thing wants to be overhauled from top to bottom before it can be said to have reached the real beginnings of business efficiency. It is most certainly the case that before the Ministry sets out to assume the responsibility for the business of other people, its own house must be set in order. But whatever reorganisation may be undertaken, and however perfect the Ministry may become in consequence, we are in total agreement with the *Telegraph* correspondent when he says that, no matter in what circumstances, it would still be a proper opinion that in claiming complete control of civilian flying, including the training of pilots, it would be going too far.

The Status Quo Ante Bellum

It is this claim to a monopoly of training that has caused more alarm than anything, since it is taken as an indication of the state of mind of those who sit in the high places of the Air Ministry. The plain man can see neither rhyme nor reason in the claim. When we get down to bed-rock we can see that the War has not really altered anything so far as administration is concerned. In 1914 it was considered quite the right thing for civilian pilots to be trained in civilian flying schools. An ungrateful Government might with reason be reminded that it was glad to send its own military pilots to these schools to be taught. The aspirant for flying honours went through his course at one of these schools and at the end of it he was examined as to his capacity by the officials of the Royal Aero Club who, if they were satisfied, issued him a certificate of competency, and he was thereupon free to fly where he liked and as much as he liked so long as he kept within the four corners of the Aerial Navigation Act. We admit that the elementary tests of 1914 require considerable revision. Without any prompting from the States concerned we think it can be taken as read that the International Federation will revise the conditions under which certificates are granted and, that being so, what logical reason is there to change the system under which civilian pilots are trained and certificated? By all means let the Air Ministry undertake the training of its own military pilots—that is a part of its business. Nor is there the slightest objection to the State insisting that its own officials shall test and certify to the ability of all pilots charged with the flying of public service machines. Again that is its business and the public which is asked to use those services has a right to demand no less, but when we come to the training and certification of pilots who are neither military or public servants the case is quite different, and we completely fail to see why the State should seek to have any hand in it. As we have more than once pointed out, the State does not seek to train masters and officers of the Mercantile Marine and there is no more logic in the claim to train private aviators than there would be in a sudden claim by the Board of Trade to upset the system under which those officers have been trained for centuries. Indeed, the Air Ministry has no organisation for doing it, while the private flying schools have. Nor has it any concrete ideas as to tests and certificates, while the R.Ae.C., under its arrangement with the International Federation, has. All things considered, then, it seems clear that these

Flight—And the Men



Brig.-Gen. E. M. MAITLAND, C.M.G., D.S.O., Director of Airship Equipment

matters are much better left in the hands of the civilian element than in those of a Government Department. We shall be very much surprised if that is not the view that will be taken in America and France, and if that view is correct we shall be hopelessly left behind at the start if we allow the State to shackle aviation to its own chariot wheel, as seems to be the intention.

"The Terror of the Air"

Sir Leo Chiozza Money is, we believe, an authority on economics and knows more than a little about shipping, but why he should spread himself to the extent of a column in the *Daily Express* on the subject of "The Terror of the Air" we do not quite understand. Nor, having read his article very attentively, do we appreciate what it is he really would have us do. Apparently, he has recently taken a flight to France and it has made him think in nightmares, since it has helped him to see that "if the nations armed themselves with aeroplanes enough the outbreak of war in twenty, or even in ten, years' time would mean such widespread terrorism throughout the world as had never before been known and . . . all the parties to the contest would be inexorably driven by the foulest of all forms of competition to the murder of non-combatants on a gigantic scale." After drawing a really moving picture of the state of anticipatory terror in which we should live even in times of profound peace, Sir Leo proceeds to say that "so appalling are the certainties of the case that it would be better for the world to lose every advantage it might gain by flying rather than have to face the terror of the air as it can most assuredly be developed."

He then tells us how the danger is to be escaped. The League of Nations must, he says, deal drastically by forbidding the manufacture or use of aerial machines or vessels of any sort for war purposes.

The League of Nations must also undertake the duty of supervising the manufacture and use of all air vehicles constructed for commercial or pleasure purposes, to ensure that they are not convertible or converted into war weapons. The manufacture of the obvious fighting vessels must cease altogether; the conversion of passenger into bombing vessels can and must be prevented.

To this end the League of Nations must establish and maintain and man the only aerial war vessels permitted in the world, to act as a world police force. These police vessels could bring swiftly to a halt any attempts by an unscrupulous Government to evade the edict against war. Their speed could make it impossible to convert commercial vessels.

The manning of this international force would be international. Britons, Frenchmen, Americans, Italians, Belgians, Spaniards, Russians, and, by-and-

Airmen in Army of Occupation

ALL airmen who have been demobilised or placed in the Reserve and who wish to re-enlist or extend their services under the bonus conditions as laid down for the Army of Occupation, may do so if found suitable. They should report forthwith to the reception depot situated nearest their homes. A cash payment will be made to ex-airmen who bring back R.A.F. clothing and equipment on re-enlistment. Such payment to be proportionate to the value of the articles

by, even compatriots of the gallant Richthofen, would serve in it as comrades and establish, we need not doubt, an *esprit de corps* not less keen than that of the famous French Foreign Legion. It could make aerial war impossible, and, more than that, it could make all war of whatever sort impossible. For science is going to do so much for aviation that the machines of the International Air Force would be easy masters of any recalcitrant member of the League.

It is all very terrible and it may be worse if the Utopian ideal of the League of Nations should fail of achievement! After all, Sir Leo has not made any new discovery. Others have seen the same thing a long time ago and we have little doubt that if the contemporary records were searched we should find it was made at the time of every new discovery capable of use in war. We know the steel-clad knights of the Middle Ages protested against gunpowder as an invention of the Evil One and as destructive of all safety in war. The Conventions of Geneva and The Hague have from time to time dealt with matters affecting the conduct of war in the endeavour to make it a paradox and to render humane a thing that is essentially inhuman and brutal. It cannot be done, and we might as well recognise the fact at once. Nor can we ignore the further fact that scientific progress of any kind can be turned to account in making war more horrible. That at least we have learnt during the Great War, and it is to that very lesson rather than to Leagues of Nations that we look to keep the future peace of the world. When war was a *dilettante* sort of pursuit, as it was before the days of poison gas and massed guns and machine guns, it was regarded as being rather fun. Certainly, a few people were killed, but not enough to make any great difference to anyone but themselves and their kin. There was no particular strain on the fighting men, because the ordinary course of a campaign was a day's fighting followed by a week or two of comparative rest. Therefore, wars were entered upon lightly by governments and the fighting men. Things are very different now, and if a plebiscite were taken of the men who have gone through the hell of the Great War—we do not mean those who have filled quiet jobs behind the lines but the men who have done the actual fighting—we should expect at least a 99 to 1 vote against any more war. The odds might even be longer than that—they certainly would not be less. Aircraft or no aircraft, we believe that so long as the memory of the Great War continues in all its squalid horror no Great Power will dare to embark upon conflict with another. That feeling of horror will be of more avail than the League of Nations, and to that and the growing sanity of mankind we look more than to Sir Leo's unoriginal suggestions to enable us to sleep quietly in our beds.

returned. Airmen will be posted in the substantive rank held by them on demobilisation. A list of reception depôts is as follows:—No. 1—40, Upper Brook Street, Mayfair, W.1, London; No. 2—8, Tyndall's Park Road, Clifton, Bristol; No. 2 (b)—12, Newport Road, Cardiff; No. 3—Carlton Chambers, Paradise Street, Birmingham; No. 3 (a)—8, George Street, Nottingham; No. 3 (b)—12, Abercromby Square, Liverpool; No. 4 (a)—The Mount, Springfield Mount, Leeds; No. 4 (b)—10, Sydenham Terrace, North Road, Newcastle-on-Tyne; No. 5—9, Somerset Place, Sauchiehall Street, Glasgow.

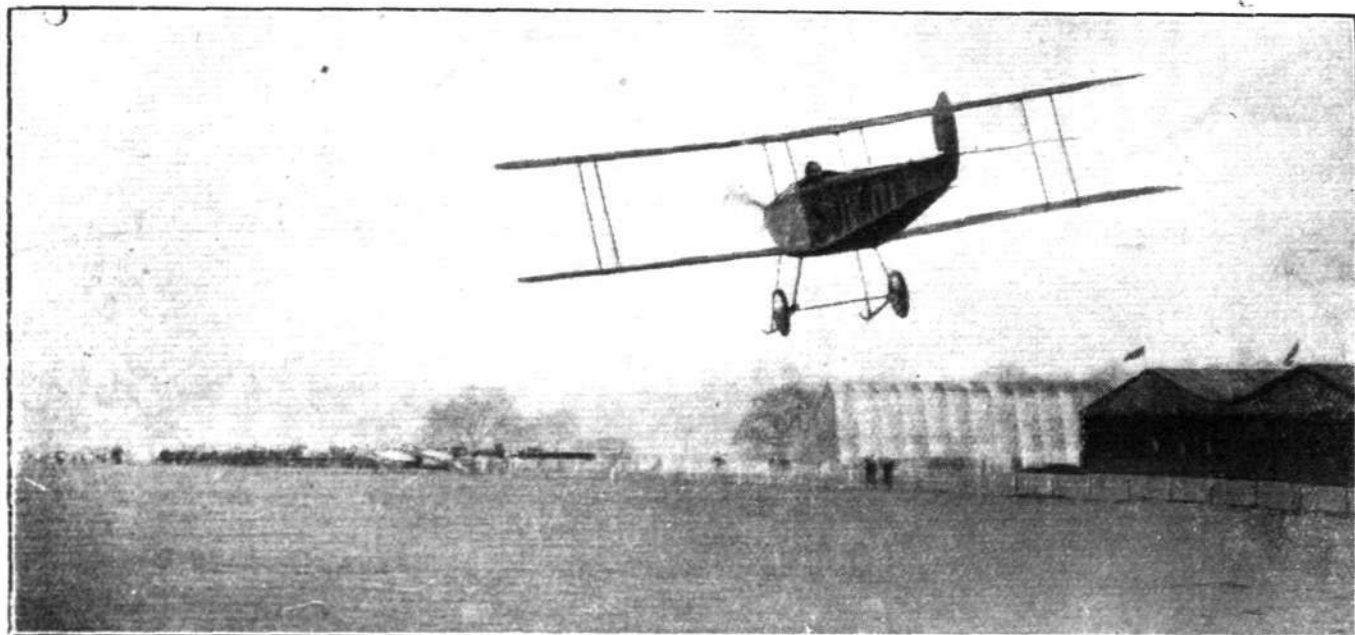
"FLIGHT—AND THE MEN."—Owing to the obvious difficulties, by reason of the call of overseas and other military duties, in obtaining special sittings for our series, "Flight—and the Men," the order of appearance of these portraits must necessarily be governed by the opportunities afforded us by those who have made aviation history in this War.

"MILESTONES"*

THE SOPWITH MACHINES

ALTHOUGH our "Milestones" series are primarily intended to include machines built during the War, we reserve ourselves the privilege of referring, when it seems advisable to do so, to machines built before the outbreak of hostilities. This is sometimes necessary in order to fully grasp the significance

biplane. This machine, although built in 1913, has had such an extraordinary effect on aeroplane design in general, and in particular was certainly the beginning of the greatness of the House of Sopwith, that it undoubtedly merits inclusion in this series of articles. We, therefore, make no



"Flight" Copyright.

A HISTORICAL EVENT.—Mr. Hawker, on the first Sopwith side-by-side two-seater "Tabloid," pays his first flying visit to Hendon in 1913

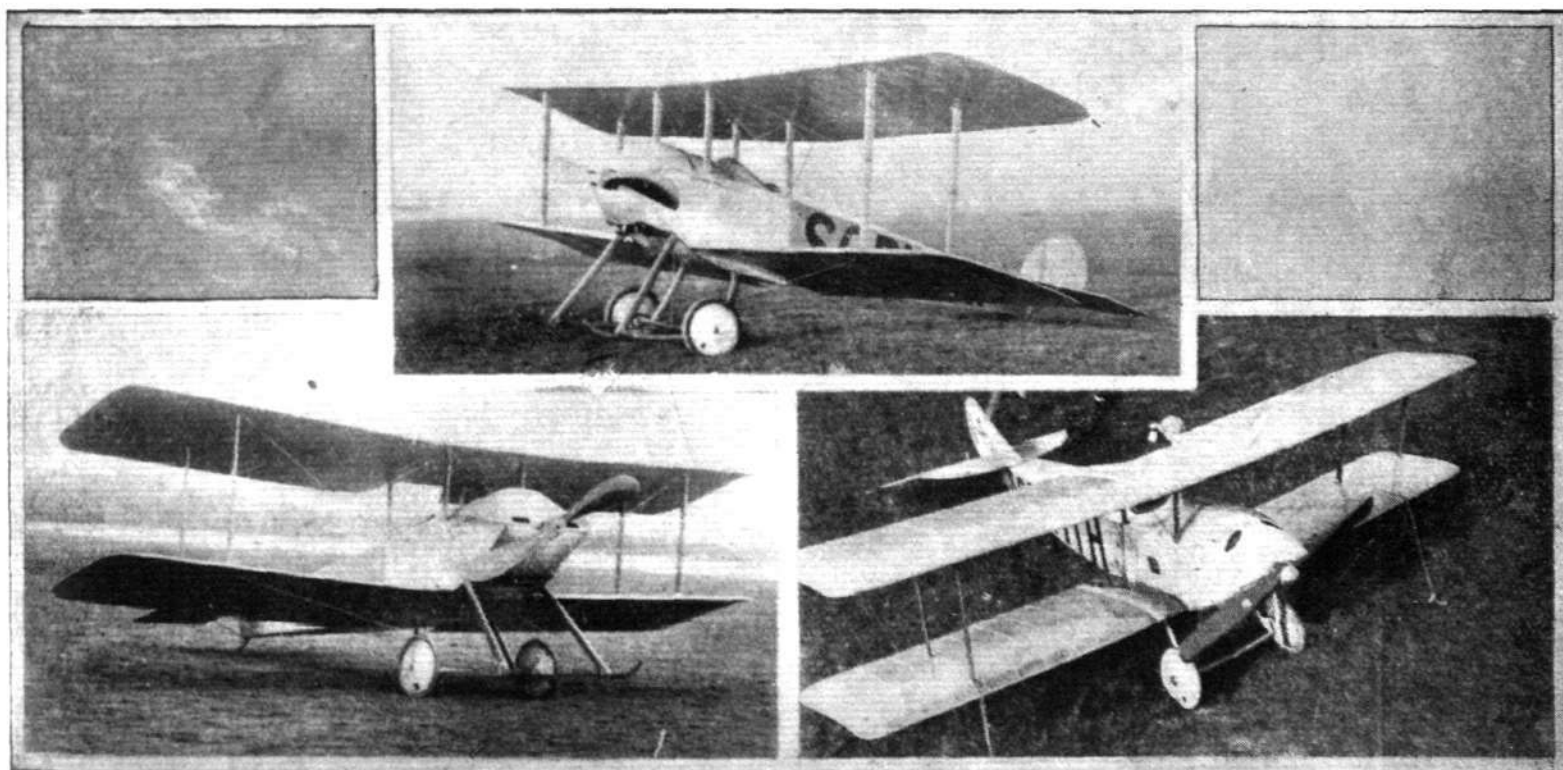
of the development that has taken place. A case in point, when dealing with the machines built by the Sopwith Aviation Co., Ltd., of Kingston, is the Sopwith "Tabloid"

apology for including the "Tabloid," although it antedates the War by some twelve months.

The Sopwith "Tabloid"

* Previous instalments of this series appeared as follows:—Airco machines: Jan. 9, 1919; Bristol machines: Jan. 23, 1919. All the scale diagrams of the "Milestones" series are to a uniform scale, and are thus immediately comparable as regards relative size.

In its original form the Sopwith "Tabloid" was built as a side-by-side two-seater, with an 80 h.p. Gnome engine. It was built for Mr. Hawker, the famous Sopwith pilot.

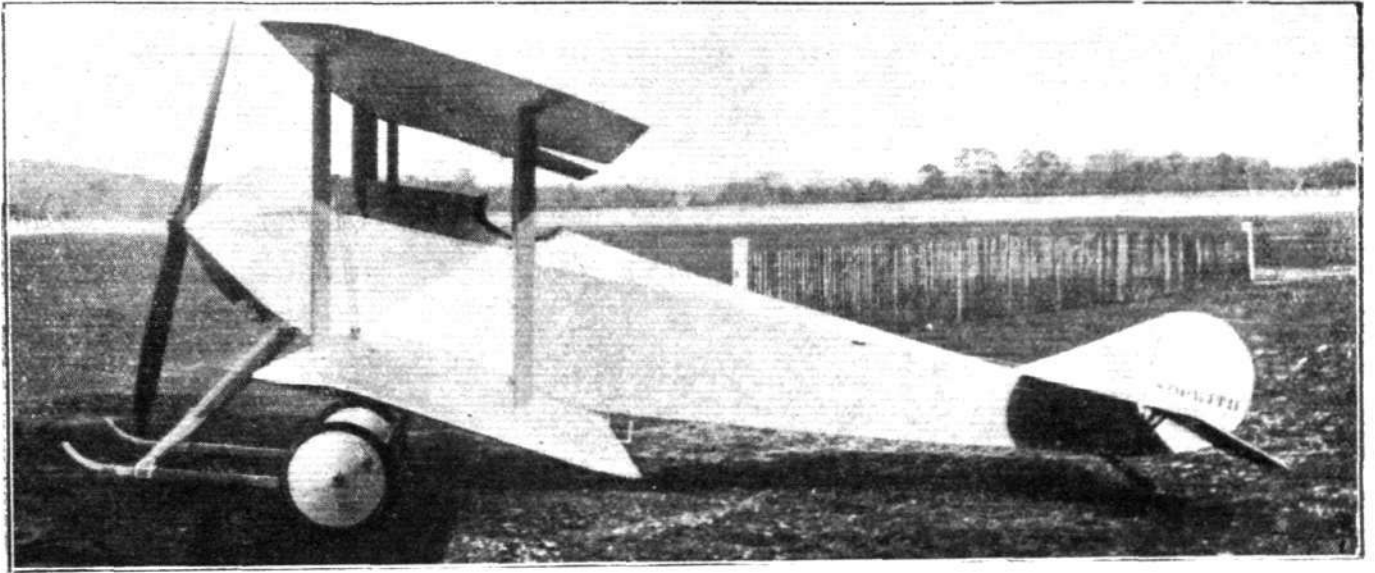


"Flight" Copyright.

Three stages in the evolution of the Sopwith "Tabloid."—The top photograph shows the machine in its original form as a side-by-side two-seater. On the left is a later type, single-seater, in which the chassis struts are slightly more raked, and which has a non-balanced rudder, in front of which is a triangular fin. On the right the Sopwith "Tabloid" in which the late Mr. H. Barnwell flew in the aerial Derby. This machine had a Vee-type undercarriage

to be taken out to Australia in 1914, but very soon after its triumphant appearance a number of single-seaters of similar type were ordered by and built for the Army. The machine in its original form was described in FLIGHT for December 20, 1913, when scale drawings of it were published. This machine, as shown in the accompanying illustrations,

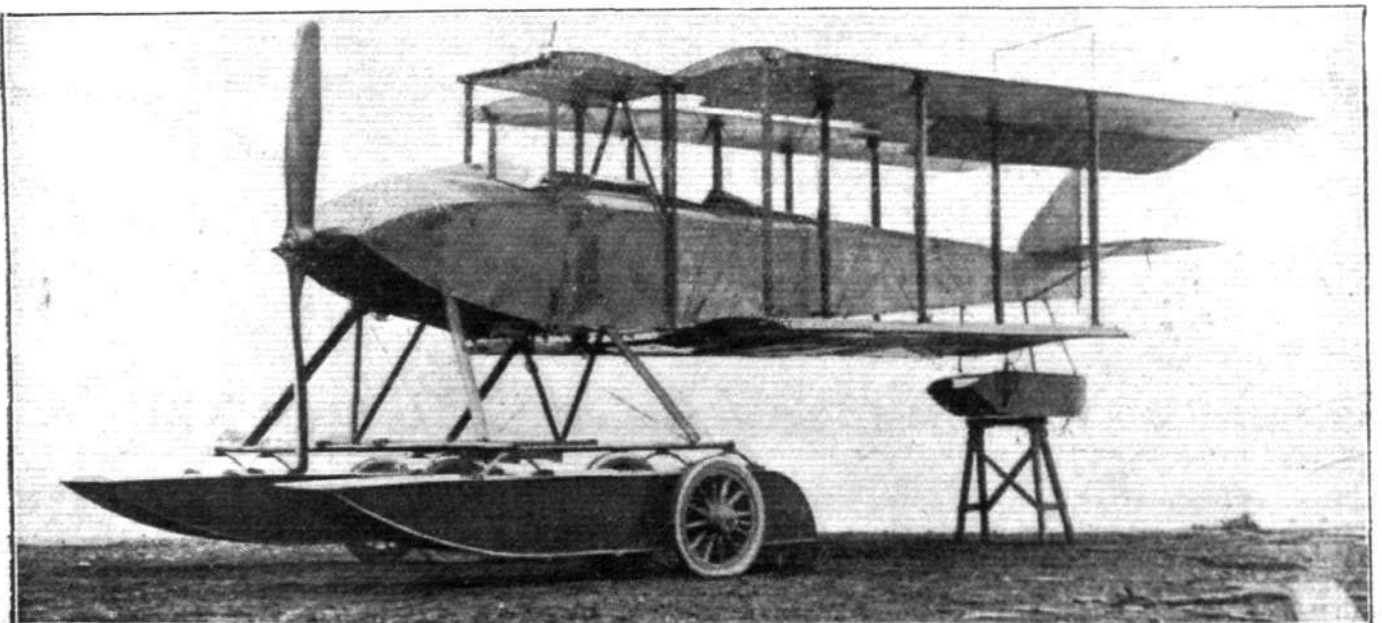
had a skid type undercarriage and a balanced rudder, while there was no fixed vertical fin. The pilot and passenger sat side by side, the pilot on the left. Lateral control was by means of wing warping. When this machine paid its first visit to Hendon it left everyone agape, as such speed as it developed had certainly never been seen, nor probably



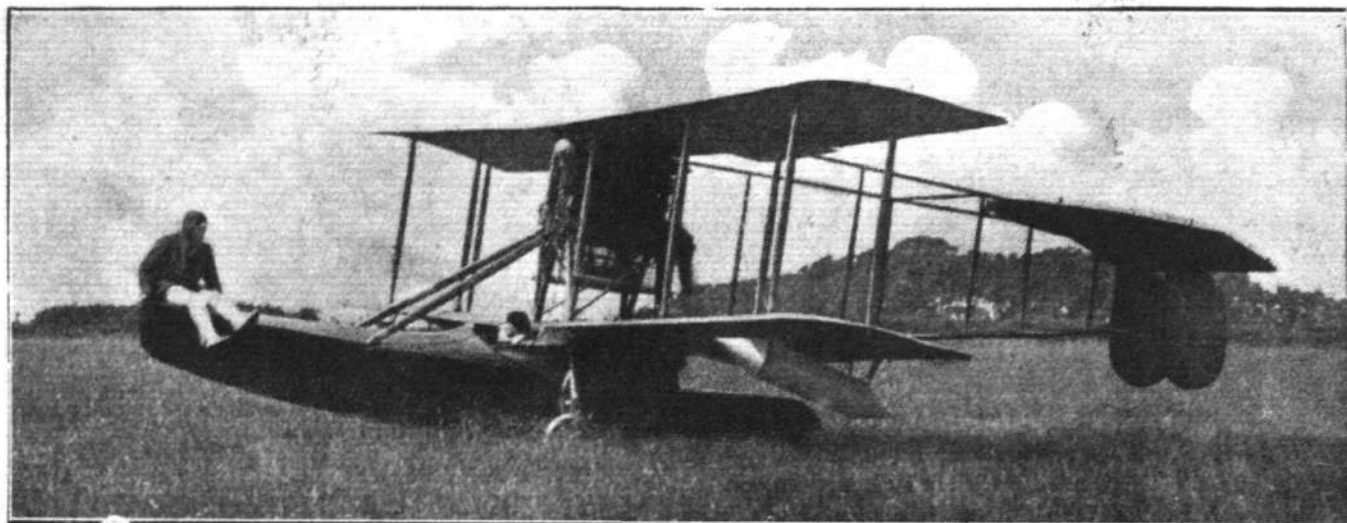
Side view of the Sopwith "Tabloid"



The Sopwith Gun 'bus, 150 h.p. Sunbeam engine



The Sopwith tractor seaplane



The Bat boat which won the Mortimer Singer Trophy

been believed possible, with a biplane type of machine. In those days the general opinion was that for speed one must have a monoplane, and it was not until the advent of the "Tabloid" that this fallacy was effectively cleared up. After that the small fast single-seater biplane received a great impetus, and the type began to become general all over the world. It will, therefore, be seen that the world at large, and British aviation in particular, owes a debt of gratitude to the Sopwith firm for having demonstrated the possibilities of the small biplane. In addition to its great maximum speed—92 m.p.h.—the "Tabloid" was remarkable in those days for its great speed range, as it would fly as slowly as 36 m.p.h. This was a range of speeds which none of the contemporary monoplanes were capable of.

In its single-seater form the "Tabloid" underwent various minor alterations. Thus one of our photographs shows it with skid undercarriage, but with the front struts slightly more raked than they were in the original machine. Another slight alteration—which, unfortunately, does not appear in the photograph—was the addition of a vertical fin in front of the rudder, which latter was not balanced. The next step in the evolution of the "Tabloid" was seen when the late Mr. Harold Barnwell flew a "Tabloid" in the aerial Derby. This machine, although similar to its prototype, was fitted with a Vee-type undercarriage. Finally, the "Tabloid" entered the last stage of its development by being fitted with ailerons instead of warping wings, and in this form it was a most successful single-seater scout.

The Gun 'Bus. (1914)

As a result of their experience with Sopwith school pushers, the Sopwith firm were given an order by the Greek Government for a number of somewhat similar machines, carrying a pilot and gunner, but not fitted with dual controls. A gun was mounted in the nose of the nacelle. This order was nearing completion when War broke out, and the machines

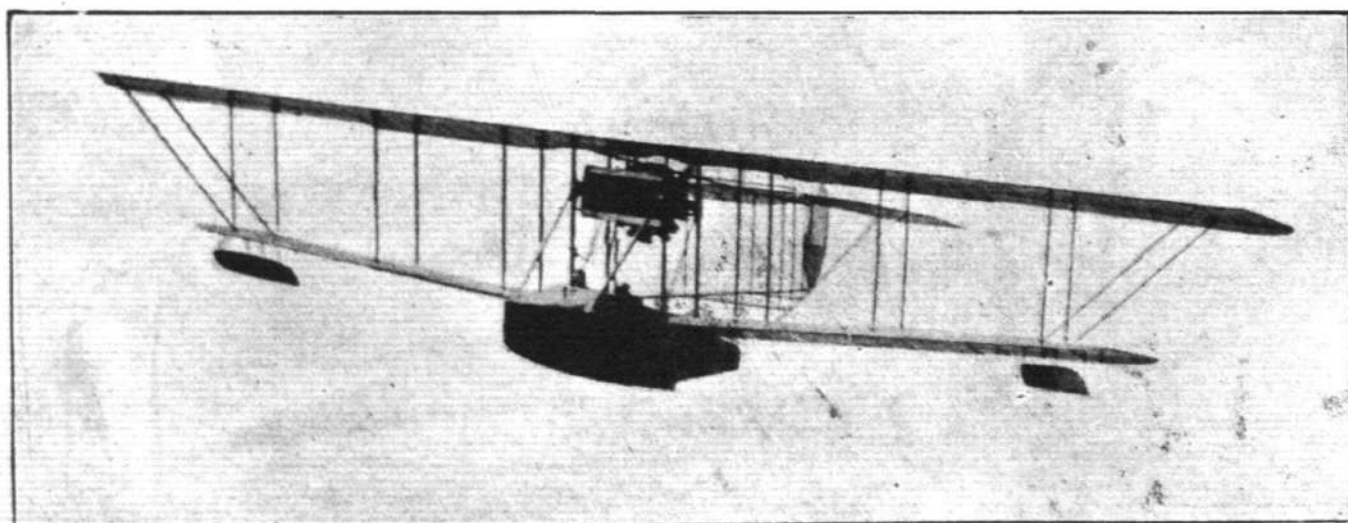
were commandeered by the Admiralty. From August, 1914, they were immediately put into service, being among the first aeroplanes to be armed, and were equipped with land undercarriages instead of the original float chassis. The earlier batches were equipped with 100 h.p. Gnomses, but later water-cooled Sunbeams were fitted. Our scale drawings and photograph show one of these machine fitted with a 150 h.p. Sunbeam. A similar machine was a very familiar sight at Hendon in the earlier days of the War, and will be remembered by many visitors to that aerodrome.

The Torpedo Seaplane. (1914)

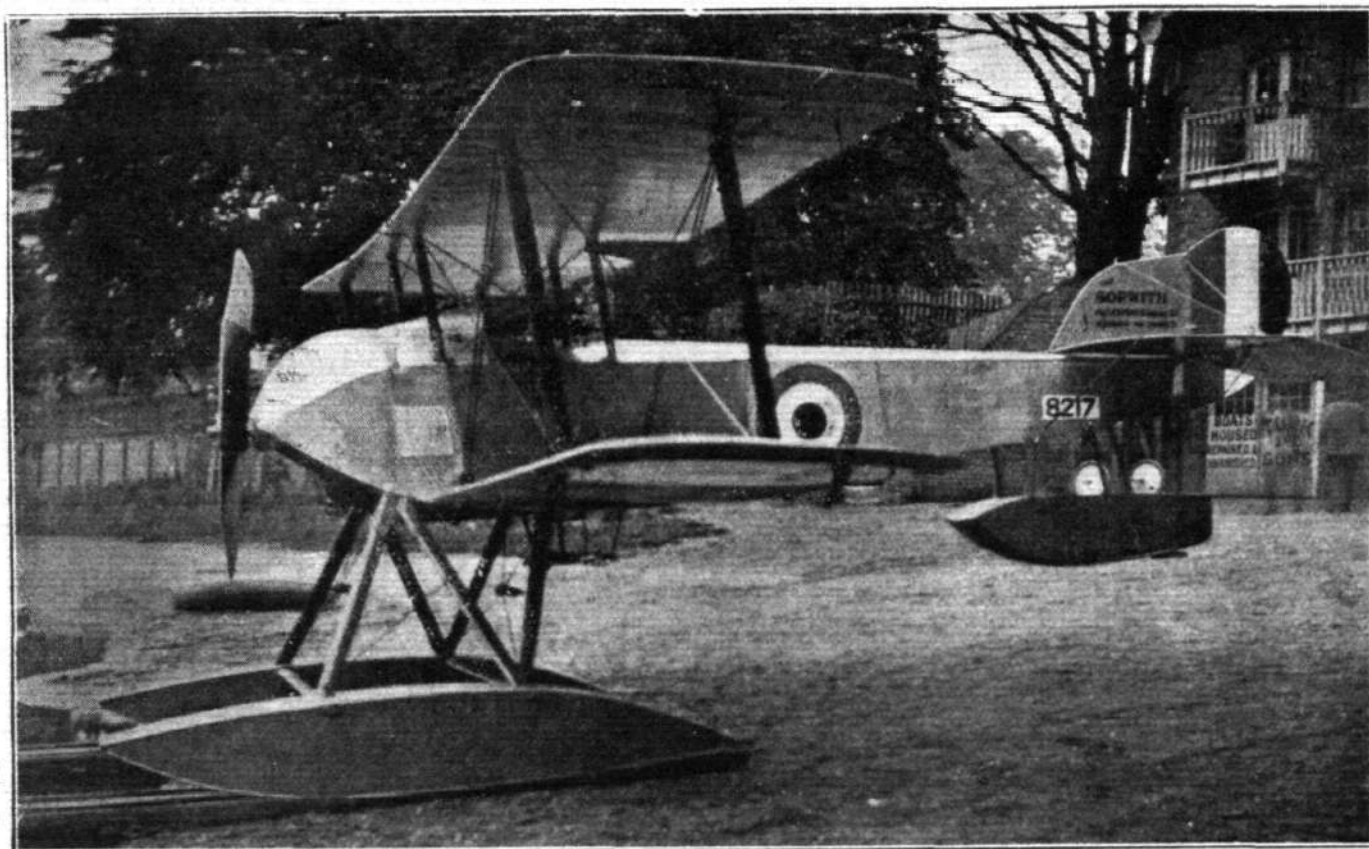
In 1915 the Sopwith Co. built for the Admiralty a torpedo-carrying aeroplane. This machine was of an experimental character, but is notable as having been the forerunner of the famous Sopwith "Cuckoo." It was fitted with a 200 h.p. Canton-Unne engine.

The Tractor Seaplane. (1914)

In the matter of tractor seaplanes the Sopwith Co. had already done good work in connection with, for instance, the circuit of Britain, and they were therefore in a position to undertake the design and construction of machines of this type when, early in the War, the Admiralty ordered some seaplanes. One type of these is shown in the accompanying photograph. It was designed for reconnaissance work and was unarmed. The engine fitted was a 100 h.p. Gnome monosoupape. From the illustration it will be seen that this machine was fitted with folding wings. A somewhat similar machine of the land type was built also. The land machine differed, however, in several respects from the seaplane, apart from the difference in undercarriage. Thus the span of the two planes was equal. On several occasions machines of this type were seen at Hendon, where they caused curiosity chiefly on account of the bomb racks fitted on the struts of the undercarriage, a feature that was somewhat unusual in those days.



A later type Bat boat with 200 h.p. Salmson engine



The Sopwith Baby seaplane

The Sopwith Bat Boat. (1914)

Although not included in the drawings, the Sopwith Bat Boat merits brief mention here on account of the good work done by this type of machine before the War. Thus it may be remembered that the Sopwith Bat Boat, which was first exhibited at the Olympia Aero Show of 1913 and which had a 100 h.p. Green engine, won the Mortimer Singer Trophy by starting off the sea, coming down on land, and starting from the land alighting on the sea again. This was accomplished by fitting it, in addition to the boat, with a collapsible wheel undercarriage. We are not quite certain but what this was the first flying boat to be built in Great Britain. A later type of bat boat is shown in another photograph. This was fitted with a 200 h.p. Salmson engine and differed from the previous type in various details. Thus, for instance, it had a straight top plane, while the bottom plane had a pronounced dihedral. Also it had a single rudder instead of the twin rudders of the previous model. Also the tail booms were so arranged as to form a Vee when seen in plan view. Boats of this type were ordered by Germany before the War, and from photographs later published in German aviation papers it would appear that the Germans made several

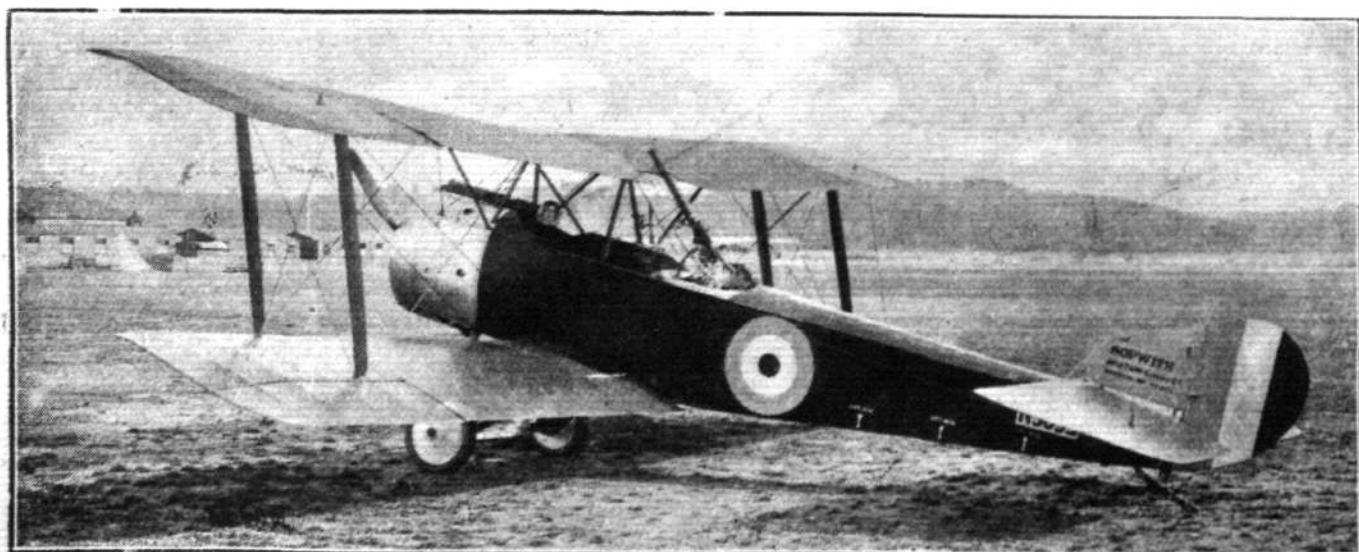
copies of this machine, imitating the original down to the smallest details.

The Baby Seaplane. (September, 1915)*

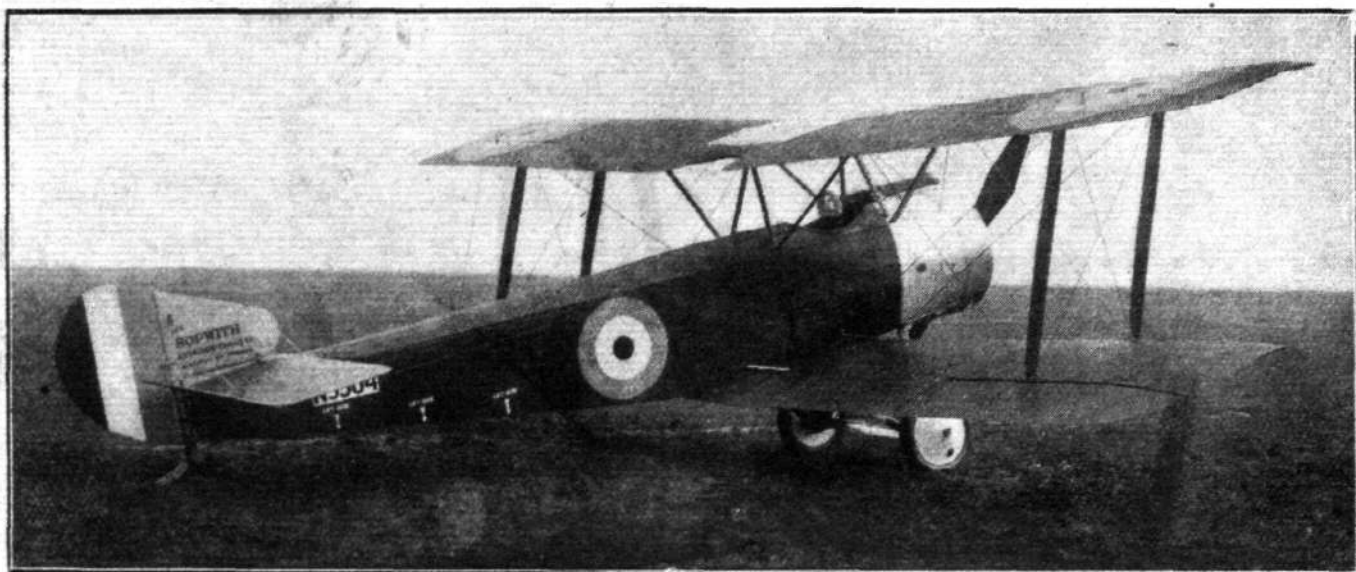
The Baby Seaplane was an immediate development of the "Tabloid," from which it differed principally in the fitting of floats instead of wheels. One of these machines made history by winning the Schneider Trophy at Monaco, and the Baby Seaplane is very similar to the famous Sopwith "Schneider." In this machine wing warping had given way to ailerons. The floats were of the plain, non-stepped type, and a tail float of considerable size was fitted under the stern. The engine originally fitted was a 100 h.p. Gnome monosoupape, but later on 110 and 130 h.p. Clergetts were also used.

It is of interest to note that, although this seaplane performed highly successfully at its first appearance, it was more or less put on one side at the outbreak of War, and it was not until November, 1914, that the demand arose for a fast single-seater seaplane. It was then immediately put into production, and from that distant date until the signing of

* The date against each machine is that on which the machine was passed by the Sopwith Experimental Department.



The Sopwith 1½-strutter fighter (two-seater)



The Sopwith 1½-strutter bomber (single-seater)

the Armistice the Sopwith Baby Seaplane has been continually in service.

The 1½-Strutters. (December 12, 1915, and June 7, 1916)

The Sopwith 1½-Strutter has claims to great historical distinction, not only for its great capabilities for use as a fighter, but because, indirectly, it set a new fashion in aerial fighting, being the first British aeroplane to carry a synchronised gun firing through the propeller. The Sopwith-Kauper synchronisation gear which made this possible was developed at the Sopwith works, and was as much a product of this firm as was the machine in which it was installed. It was also fitted with the Scarfe gun ring for the gunner, which has since become such a well-established feature on all fighters. The 1½-Strutter was originally designed as a high-performance two-seater fighter, with a 100 h.p. Clerget engine. At the time of its introduction it was justly regarded as an extraordinarily good 'bus, having an excellent performance and a good manoeuvrability. Incidentally it established a world's altitude record for an altitude of 23,980 ft. In view of its good performance, coupled with its (for the times) excellent armament, the 1½-Strutter had a tremendous success, and it is not surprising that many machines were built to the order of the Governments of Roumania, Russia, America and Belgium. In addition, it might be mentioned that the French Government has manufactured under licence no less than 4,500 machines of this model. In addition to the novel points connected with the mounting and firing of the guns carried, the 1½-Strutter was interesting in several other respects. Thus the wing bracing—which gave it its name—was very unusual, and in a modified form set a new fashion, so to speak. The top plane was in two halves, bolted to the top of a central cabane, while the spars were provided with an

extra support in the shape of shorter struts running from the top longerons to the top plane spars some distance out. In the single-seaters to follow this bracing of the top plane was generally adopted, with the exception that the central cabane was done away with, the outer struts of the W formation having a slightly less pronounced slope, and supporting a separate top plane centre section. Aerodynamically the 1½-Strutter is of interest in being fitted with an air brake in the form of adjustable flaps in the trailing edge of the lower plane adjacent to the fuselage. These flaps could be rotated by the pilot until they were normal to the wind, thus helping to pull the machine up when about to land.

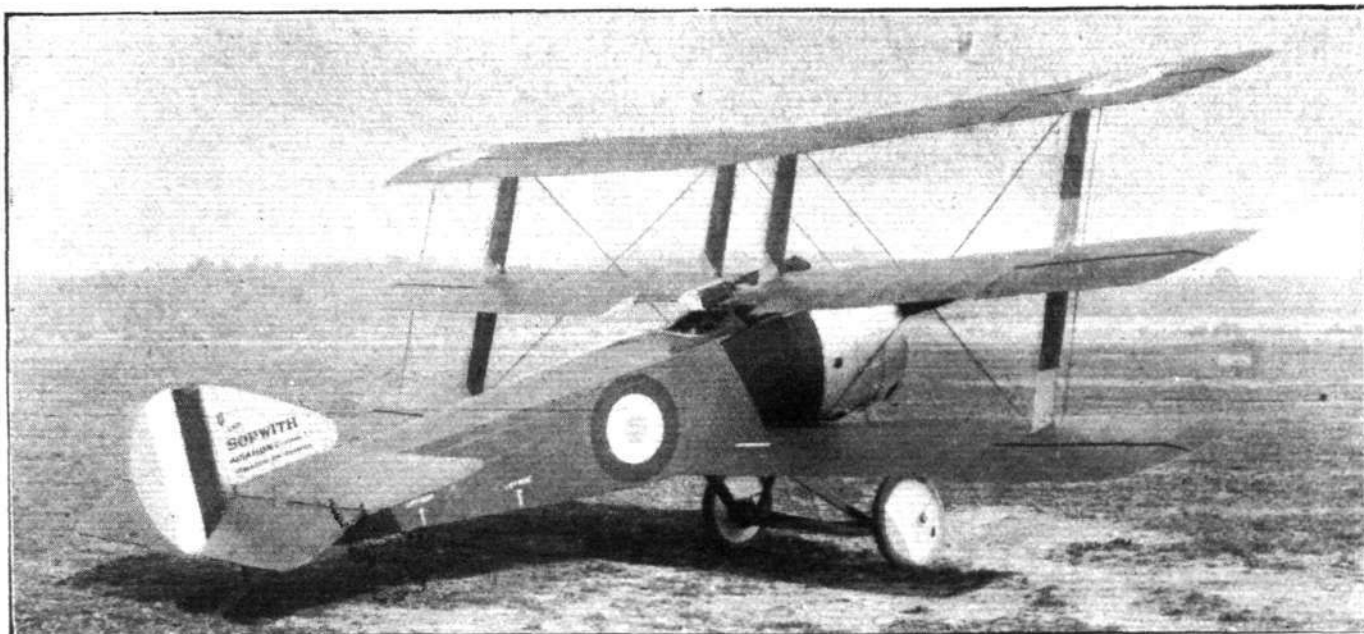
A more successful innovation incorporated in this machine was the trimming gear, by means of which the angle of incidence of the tail plane could be altered during flight. In this manner the difference in weight of the passenger carried could be counteracted by the tail setting, and also the tail could be adjusted for high speed, climbing, &c. This feature has since become universal practice on passenger-carrying machines.

The 1½-Strutter Bomber

Originally designed as a two-seater fighter, the 1½-Strutter was later adopted as a single-seater bomber, and it is the machine which has been so successful in bombing, with good results, such towns as Essen, Munich and Frankfort. For bombing work the 1½-Strutter was equipped with a 130 h.p. Clerget, which afterwards took the place of the 110 h.p. Clerget in the standard two-seater fighter model. It might also be mentioned that fairly recently the French Government converted a large number of two-seaters into school machines with dual controls. These machines are fitted with 80 h.p. Le Rhone engines.



The Sopwith Pup



The Sopwith triplane single-seater

The Sopwith "Pup." (February 9, 1916)

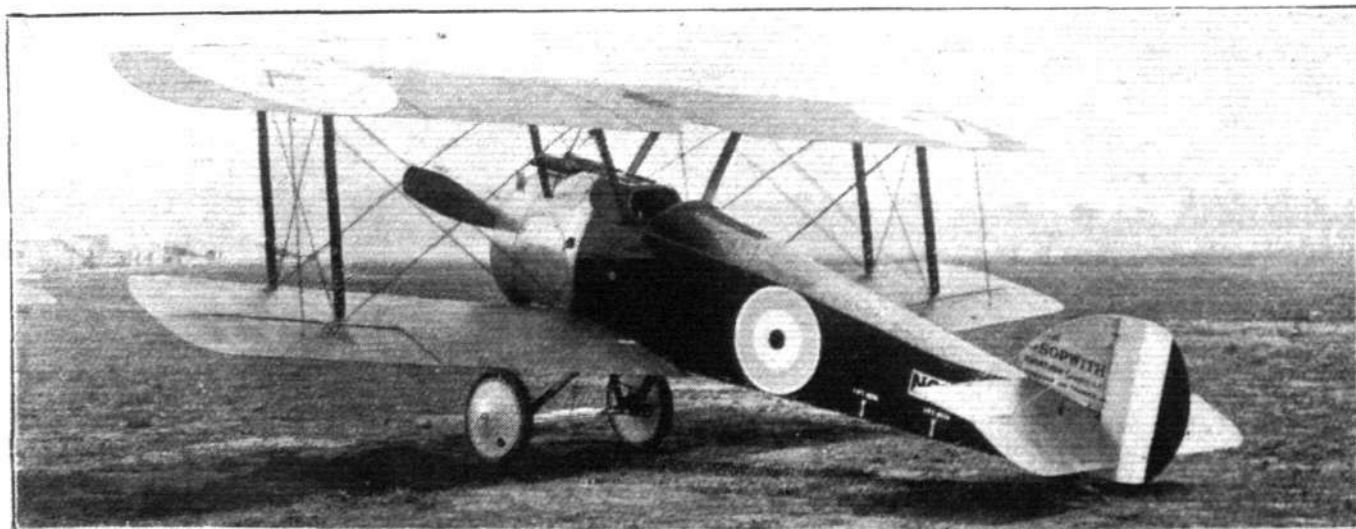
This famous single-seater scout bears a strong family resemblance to the Sopwith "family," being reminiscent of both the 1½-Strutter and of the original "Tabloid." The "Pup" was brought into existence principally with the object of tackling the Fokker monoplanes that were at one time doing far too well on the Western Front. In this object it succeeded admirably, and although judged by present standards it is of very low power—it was fitted with an 80 h.p. Le Rhone engine—its performance and ease of handling endeared it so much to its pilots that its merits are spoken of with much affection, tinged with a little regret that it has had to give way for higher-powered machines. Incidentally we should imagine that it might be worth while for the Sopwith Co. to market the "Pup" as a sporting machine for use after the War. It handles remarkably well and lands quite slowly, while its cost and upkeep would not be exorbitant. A feature of the "Pup" are the window panels in the upper plane. The windows were rendered necessary by the fact that the pilot sat with his head below the level of the plane. A single machine gun firing through the propeller is mounted above the fuselage.

The "Pup" (Sea-Type)

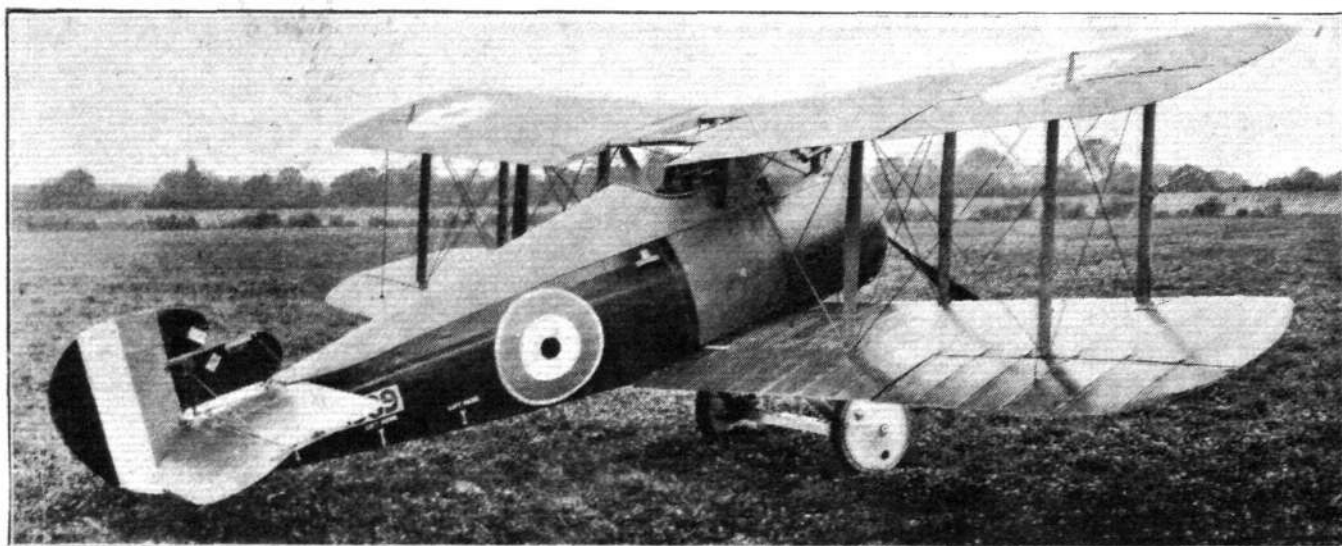
When starting from and alighting on the deck of a ship became the fashion, the Sopwith "Pup" was modified slightly for this purpose, and good work was done by this type on the North Sea patrols, for which work it proved very suitable. No illustrations of the sea "Pup" have been included, as the machine did not differ greatly from the standard type.

The Sopwith Triplane. (May 28, 1916)

Amongst all the Sopwith productions, nearly all of which have attained great fame—so much so, indeed, that their type names are veritably household words—none is more characteristic than the triplane, affectionately known as the "Tripe" or "Tripehound." This machine was fitted with 130 h.p. Clerget engines. The principal objects aimed at in this notable design were, first, the attainment of a high degree of visibility, or, rather, the reduction to a minimum of the pilot's blind angle. With his head on a level with the intermediate plane, he enjoys a practically unrestricted arc of vision through about 120°, whilst sections cut out of the centre of the intermediate plane enable him to have a good view of the ground when landing, the position of the cockpit being such that the bottom plane has no restricting influence on the view. The narrowness of the chord made available by the use of three main planes also allowed the pilot an exceptional view upwards and to either side, an important consideration in a purely offensive machine. The second object aimed at was an increase in manoeuvrability, and the triplane principle was adopted to secure this purpose in consequence of the fact that, owing to the narrow chord, the shift of the centre of pressure with varying angles of incidence is relatively smaller than in a biplane, and consequently demands a shorter length of fuselage to carry the tail. At the same time the small span reduces the moments of inertia in the horizontal plane, and a machine is thus obtained which is highly responsive to its controls and which can add the important ability to dodge to its other strategic advantages. The consideration of movement of the centre of pressure enabled single I-struts to be adopted in place of the usual pairs springing one from each spar. This construction also



The Sopwith Camel



The Sopwith Snipe

leads to a sensible simplification of the wiring system. Ailerons of the unbalanced type are fitted to all three planes.

The Sopwith "Camel." (December 22, 1916)

Few aeroplanes have done more to repulse German attempts at aerial supremacy than the famous "Camel," so called from the hump which it carries on the forward top side of its fuselage by virtue of the fitting of two fixed machine guns, both firing through the propeller. Furnished with a 130 h.p. Clerget, and designed to achieve a very high performance both in climb and speed, the "Camel" showed itself a redoubtable fighter against antagonistic scouts, and also performed extraordinarily well as a Zeppelin catcher, in which latter connection its ability to climb with great rapidity was extremely valuable. A good angle of vision was obtained by keeping the pilot fairly well forward, and also by the positive stagger of the planes. In place of the large transparent panels fitted into the middle of the top plane in the "Pup," that of the "Camel" was provided with a faired-off slot. The remainder of the design followed "Pup" lines pretty closely, but it is of interest to note that this machine was the first to be fitted with two machine guns, a practice that has since been extensively adopted in both Allied and enemy aeroplanes of a similar type.

The Sopwith "Camel" (Sea Type)

This design was almost identical with the above, except that the fuselage was made detachable at the rear of the pilot's seat, enabling the machine to be conveniently stowed aboard ship. It was used for flying from the deck of seaplane carriers, and, in addition to this, was also carried on some of our fast cruisers. The method of launching was off the Barbet guns. It will be appreciated that it required a machine of considerable efficiency to get off with certainty and satisfaction with so short a run.

The Sopwith "Snipe." (March 17, 1917)

This machine was produced primarily with a view to the attainment of a very high performance and exhibits characteristics of both the "Camel" and "Dolphin." From the latter it differs in point of stagger and plane dimensions,

and also in having a 200 h.p. B.R. engine in place of the Hispano-Suiza. As in the "Dolphin," the rudder is of large size and balanced, and the "Snipe," as might be expected from its general lines and arrangement of weights, was highly manœuvrable. The pilot's head, owing to the deep fuselage and small gap, is on a level with the top plane, the centre of which is partly cut away and partly slotted. A double-bay system of struts is used, giving, with the relatively small span, great constructional strength. Owing to the large diameter of the B.R. 2, the rectangularity of the fuselage only appears towards the tail, and the body is more pronouncedly circular than in previous Sopwith designs. The "Snipe" did not make its appearance until well on in the middle of 1918, and had thus very little chance of introducing its qualities to the German Flying Corps. In the short time at its disposal, however, it made an enviable reputation for itself. In four days a single "Snipe" squadron accounted for 36 enemy aeroplanes, and downed 13 in one day. At this rate German aerial personnel would have become rapidly exhausted. An outstanding feat was that performed by Major Barker, who, on a Sopwith "Snipe," when attacked by 60 hostile machines, crashed four of them and drove down no less than 10 out of control.

In addition, it might be mentioned that a "Snipe" fitted with an A.B.C. engine attained a speed of 156 m.p.h., and climbed to 10,000 ft. in 4½ minutes.

The Sopwith "Dolphin." (May 23, 1917)

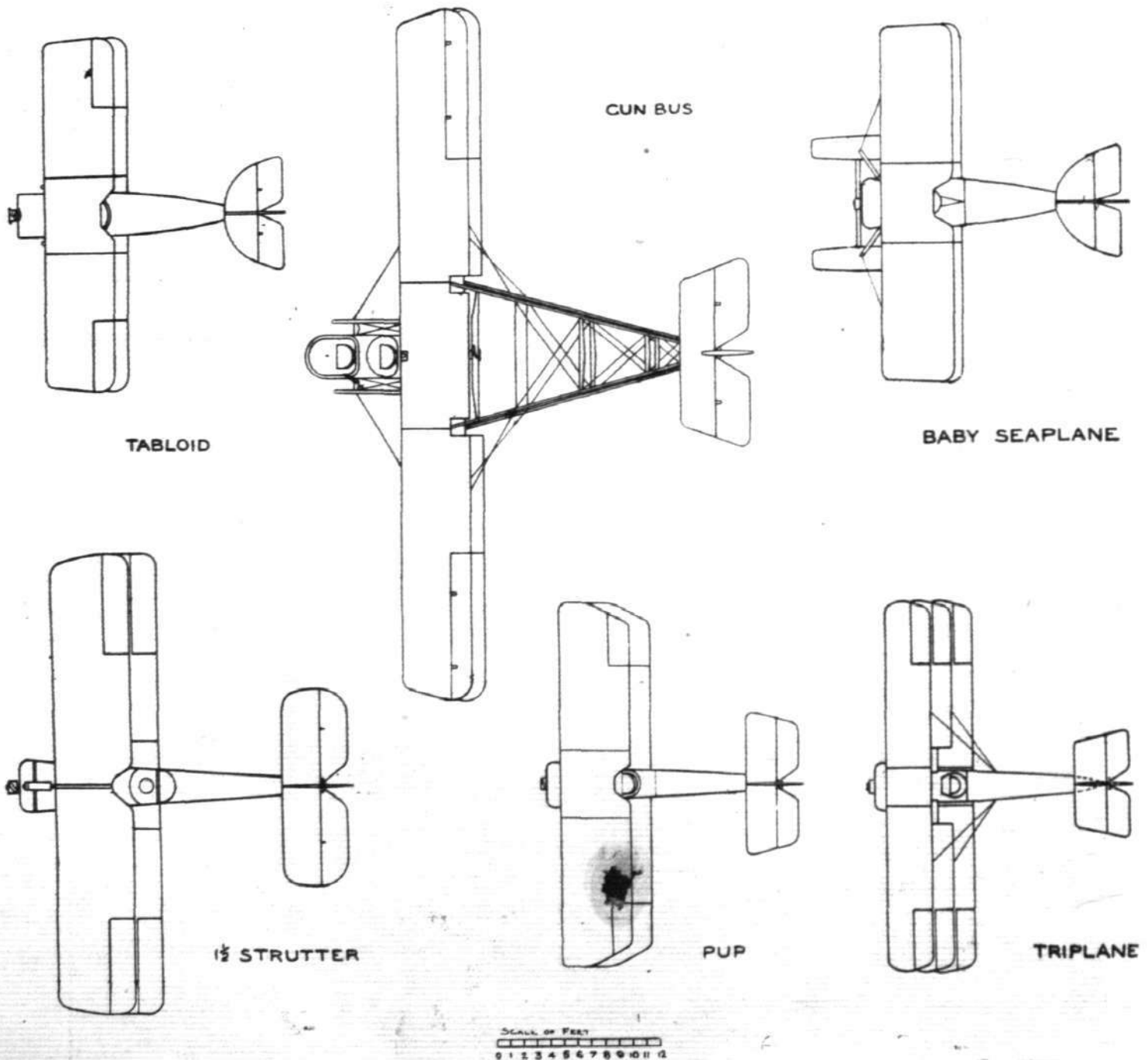
Two principal objects were borne in mind in the design of this single-seater fighter—firstly, to make good use of the 200 h.p. Hispano-Suiza engine (which had reached a productive stage), and, secondly, to afford the pilot a range of vision greater than that of any other existing aeroplane. The former necessitated a departure from the usual lines of the Sopwith fuselage, the upper surface of which in the rear of the cockpit is more pronouncedly arched than in previous types. The span of the planes was increased beyond that of the "Camel," and a double-bay arrangement of struts adopted in order to provide great structural strength. At the same time the gap was slightly diminished, and, what



The Sopwith Dolphin



The Sopwith Cuckoo



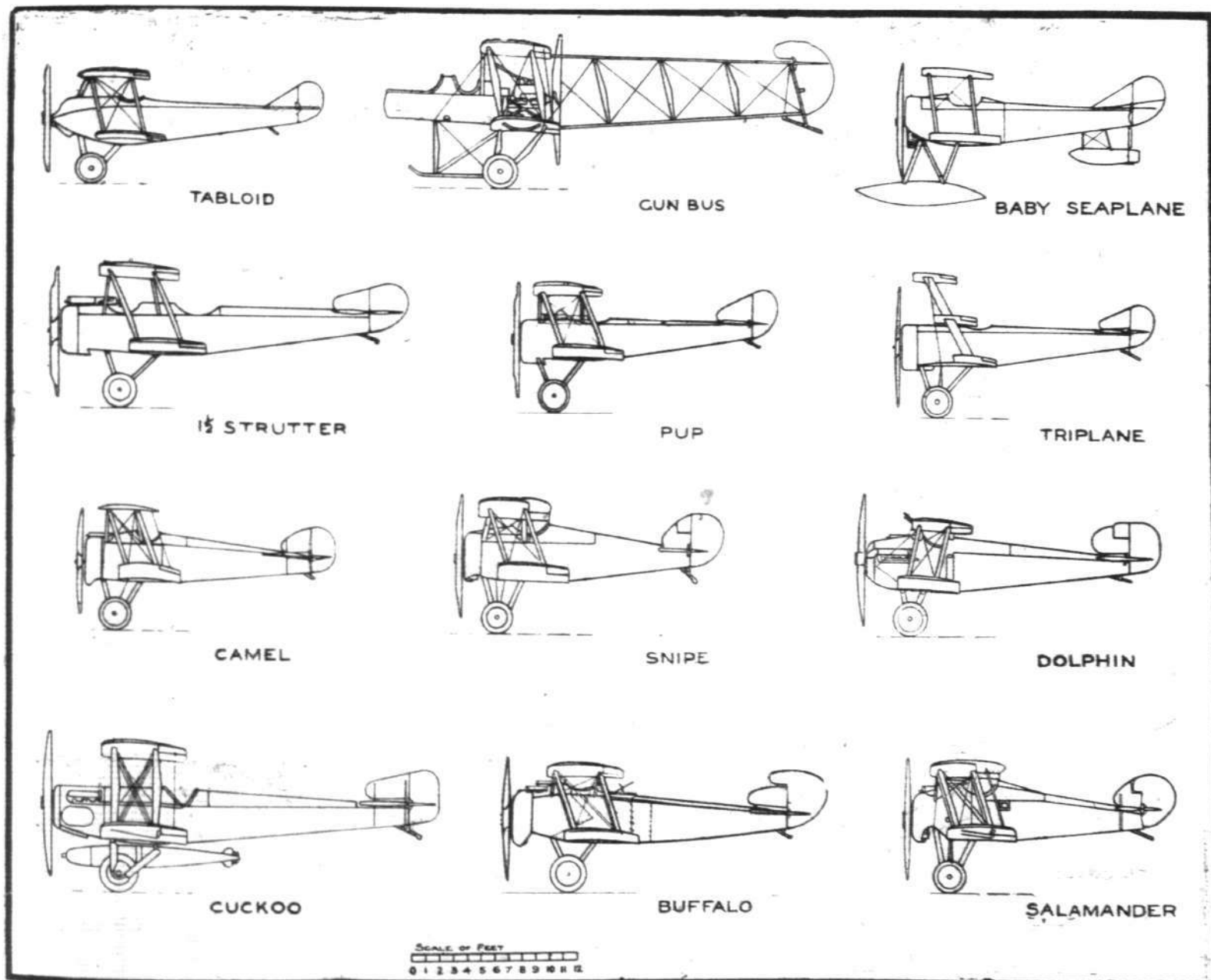
Plan views of Sopwith machines

forms a strong characteristic of the type, a negative stagger was adopted, with the object of placing the main spar extensions of the top plane in such a position as not to interfere with the complete freedom of movement of the pilot, who occupies the rectangular space formed by them. On these

tubular steel spar extensions—which are supported by four short vertical struts from the fuselage—are mounted two Lewis guns, capable of being aimed independently of the direction of the machine. Two fixed Vickers' guns firing through the propeller are arranged along the top of the



The Sopwith Buffalo

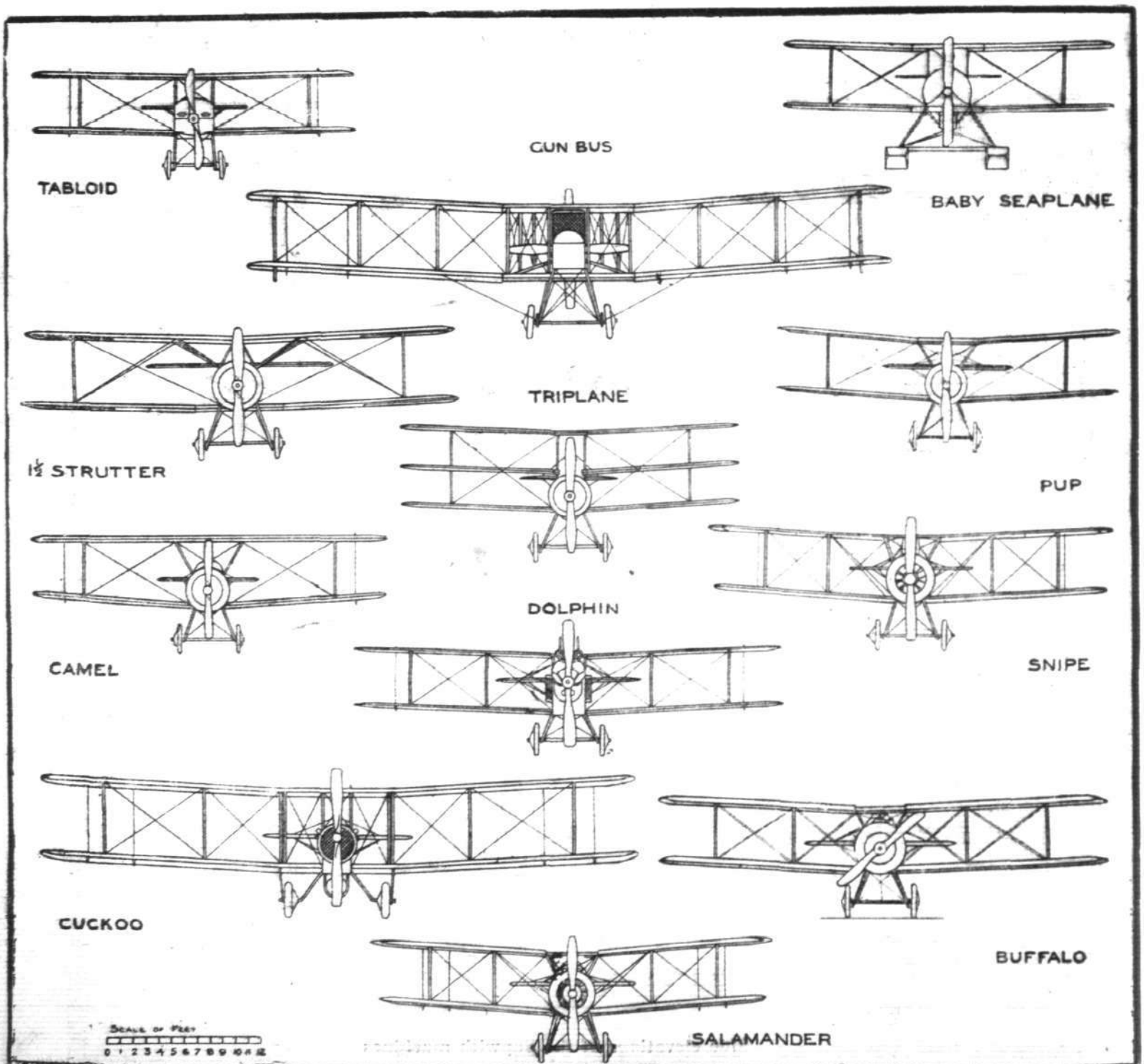


Side elevations of the Sopwith machines

"Flight" Copyright.



The Sopwith Salamander



engine, and are partially covered in by this cylinder fairing. The general arrangement of the front part of the fuselage is particularly neat, and its formidable appearance is well supported by the "Dolphin's" offensive capabilities. The radiator is divided into two portions, each carried on one side of the fuselage level with the pilot's cockpit. In front of each radiator is arranged an inclined and adjustable deflector, allowing the whole or any part of the cooling surface to be obstructed. Among other features of the "Dolphin" will be noted an *empennage* design differing markedly from that of previous Sopwith types. The fin is of a more upright shape and the rudder is balanced.

The 300 h.p. "Dolphin."

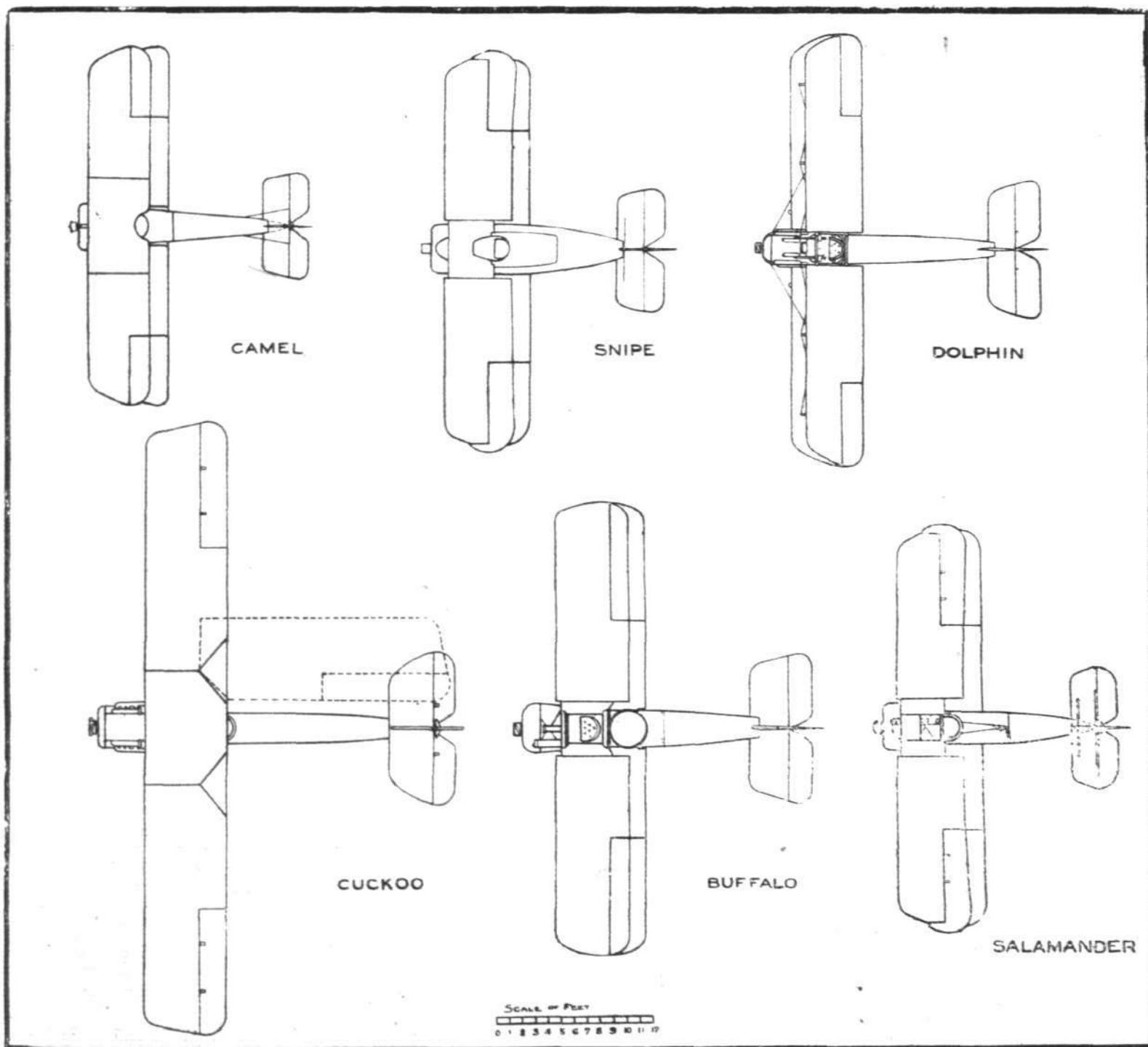
In connection with this type it is of considerable interest to note that at the signing of the Armistice it was being built in quantities by the French Government, for themselves and the American Government in France. It is fitted with the 300 h.p. Hispano-Suiza, and an adjustable tail plane is employed, since the variable load is considerable, the French and American Governments calling for a very large quantity of petrol to be carried. The machine was reinforced in certain respects to allow for the considerable addition of power, and it had every promise of being an extremely formidable proposition.

In general outline it was very similar to the 200 h.p. Hispano-Suiza "Dolphin." The guns were completely concealed under the cowling, being fitted in tunnels, and the air intake of the carburettor was fitted with a telescopic-type gas tube direct into the front cowl, considerably diminishing the risk of carburettor fire.

The Sopwith "Cuckoo." (June 6, 1917)

There is a genuine humour in all the Sopwith type-names, and in none more so than in the "Cuckoo," which was encouraged to lay a very splendid egg in any German nest that could be located above the surface of the sea. The egg in this case was a special 18-in. torpedo, which the "Cuckoo" carried strung underneath her fuselage and between the wheels of the landing carriage, which, it will be observed, consists of two independent wheels, each separately mounted, and not, as is usual, united by a common or articulated axle.

This machine was built at the request of Commander Murray Sueter, R.N., and was of considerable dimensions. The treble-bay arrangement of struts will be noted from the photograph, as also the installation of the 200 h.p. Hispano-Suiza geared engine, with the elliptical radiator surrounding the propeller shaft.



Plan views of Sopwith machines

"Flight" Copyright.

The "Buffalo." (February 19, 1918)

This machine, fitted with a B.R. 200 h.p. engine, was designed primarily for reconnaissance and contact patrol work, with a view to armouring the pilot, observer and fuel tanks against enemy attack. The construction of the fore part of the fuselage was similar to the "Salamander." It was fitted with one synchronised gun firing forward and one Lewis gun on a Scarfe ring mounting firing aft. The experiments with this machine were highly successful, and it was on the point of being put into quantity production when the Armistice was signed.

The "Salamander." (April 26, 1918)

In general lines this formidable aeroplane is modelled upon its prototype, the "Snipe," but its function is of a totally different character, as it was designed primarily as a trench

fighter, for which purpose it is armed with two fixed machine guns and protected with armour plating. The latter forms the front of the fuselage from a point immediately in the rear of the engine (a B.R. of 200 h.p.), and extends to the rear of the pilot's cockpit. This plating was not added to an existing frame, but had a structural as well as a protective function, and itself formed the front portion of the fuselage. It will be noticed that the faired cowling behind the engine detail is seen in the tapering spine serving to fair off the pilot's head. This being bullet-proof, gave him a considerable means of protection against attack from the rear. The total weight of the armour is 650 lbs., and, in addition to this extra load, 2,000 rounds of ammunition were carried for the guns.

Table of dimensions of Sopwith machines.

Type of machine.	Length o.a.	Wing span.		Wing chord.		Wing area.*			Inci-dence.		Gap.	Stagger.	Sweepback.	Dihedral.		Aileron area.	Area.			Area.		
		Top.	Bot.	Top.	Bot.	Top.	Bot.	Total.	Top.	Bot.				Top.	Bot.		Tail-plane.	Elevators.	Total.	Fin.	Rudder.	Total.
Tabloid	20 4	25 6	25 6	5 1 1/2	5 1 1/2	128 3	113	241 3	1 0	1 0	4 6	0 11	0	1 5	1 5	28	11 8	11 8	23 6	1 8	4 27	6 07
Gun 'bus	32 6	50 0	50 0	5 1 1/2	5 1 1/2	246	228	474	4 0	4 0	5 6	1 0	0	3 5	3 5	60	28 0	28 0	56 0	8 75	13 0	21 75
Baby sea-plane	22 10	25 8	25 8	5 2	5 2	128	112	240	3 0	3 0	4 6	0 8	0	2 0	2 0	0	14 0	12 0	26	2 7	6 5	9 2
1 1/2 strutter	25 4	33 6	33 6	5 6	5 6	183	170	353	2 45	2 45	5 5	2 0	0	2 45	2 45	52	35 5	21 5	57	3 5	7 25	10 75
Pup	19 4	26 6	26 6	5 1 1/2	5 1 1/2	132	122	254	1 5	1 5	4 5	1 6	0	3 0	3 0	22	23 0	11 8	34 8	3 5	4 5	8 0
Triplane†	18 10	26 6	26 6	3 3	3 3	84	75	159	2 0	2 0	3 0	1 6	0	2 5	2 5	34	14 0	9 6	23 6	2 5	4 5	6 5
Camel	18 9	28 0	28 0	4 6	4 6	125	115	240	2 0	2 0	4 3	1 6	0	0 0	5 0	36	14 0	10 5	24 5	3 0	4 9	7 9
Snipe	19 10	31 1	30 0	5 0	5 0	138	133	271	1 8	1 8	4 3	1 4	0	4 0	4 0	45	15 0	11 0	26 0	2 75	9 0	11 75
Dolphin	22 3	32 6	32 6	4 6	4 6	132	131 25	263 25	2 0	2 0	4 3	1 0	0	2 5	2 5	38	17 0	13 5	30 5	3 5	8 0	11 5
Cuckoo	28 6	46 9	46 9	6 9	6 9	290	276	566	3 0	3 0	6 0	0 0	0	2 5	2 5	80	35 6	18 0	53 6	5 7	8 0	13 7
Buffalo	23 3 1/2	34 6	34 6	5 6	5 6	162	164	326	1 8	1 8	4 6	1 9	0	2 5	2 5	44	23 0	15 8	38 8	4 0	9 0	13 0
Salamander	19 6	31 2 1/2	30 1 1/2	5 0	5 0	139	133	272	1 8	1 8	4 3	1 5	0	4 0	4 0	51	15 0	11 0	26 0	2 75	9 0	11 75

* Including ailerons.

† Middle plane: Span 26 ft. 6 ins., chord 3 ft. 3 ins., area 72 sq. ft.

‡ 5 ft. at root, 4 ft. at tip.

Table of weights, etc., and performance of Sopwith machines

Type of machine.	Engine.		Weight of machine.		Fuel capacity. lbs.	Range (in miles)*.	Speed (m.p.h.).			Climb (in mins.) to			Ceiling. ft.	Landing speed. m.p.h.	Load/sq. ft. lbs.	Load/h.p. lbs.	Military load.
	Type.	H.P.	(empty) lbs.	(loaded) lbs.			6,500.	10,000	15,000	6,500	10,000	15,000					
Tabloid	G.	80	730	1,120	245	320	92†							36	4.66	14.0	
Gun 'bus	S.	150												40			
Baby Seaplane ..	C.	100												45			
1½ Strutter	Le Rh.	110	1,281	2,205	404			103		10.5	18.9	41.5	10,000	35	6.4	17.5	160
1½ Strutter	C.	130	1,316	2,342	502		102	98.5		12.7	24.6		13,000	35	6.7	18.8	344
Pup	Le Rh.	80	787	1,225	178	320	106.5	104.5	94	8.0	14.4	30.1	17,500	30	4.8	14.6	80
Pup	G.M.	100	856	1,297	181	190	107	104	100	7.1	12.4	23.4	18,500	30	5.2	12.4	80
Triplane	C.	130	1,103	1,543	180	310	112.5	106.5	95	6.5	11.8	22.3	20,500	35	6.0	12.4	80
Camel	Le Rh.	110	889	1,422	252	330		118.5	111	5.2	9.2	16.8	24,000	35	6.2	10.4	101
Camel	G.M.	150	993	1,523		275		117.5	107		10.2	19.6	23,700	35	6.5	10.15	
Camel	C.	130	929	1,453	243	300		113	106.5	6.0	10.6	20.7	19,000	35	6.3	11.5	101
Camel	G.	100	882	1,387	224	300		106	100		11.8	23.2		35	6.0	13.8	101
Camel	A.R.1	150	977	1,508	250	290	116.5	111	103	5.5	9.8	20.0	18,000	35	6.5	10.0	101
Camel	B.R.1	150		1,470		310		121	114.5		8.3	15.8	23,000	35			
Camel	B.R.1	150	1,036	1,530	223			118	112		11.5	25.0	18,000	38	6.7	10.2	91
Snipe	B.R.2	230	1,310	2,020	343	370		121	113		9.5	18.8	20,500	40	7.5	8.86	365
Dolphin	H.S.	200	1,406	1,881	194	230	131.5	128.5	124	4.9	8.25	14.7	23,500	40	7.3	9.0	101
Dolphin	H.S.	300	1,566	2,358	504	290		140	133‡	5.2	8.3	12.2‡	24,600	40	9.0	7.5	107
Cuckoo	H.S.	200	1,840	3,370		420		100		14.5	26.0		19,000	40	6.4	17.0	
Buffalo	B.R.2	230	2,230	3,100	380	275	100§			4.9	9.5¶			60	9.5	13.5	
Salamander	B.R.2	230	1,844	2,510	258		123	117			17.1		14,000	60	9.4	11.0	410

G = Gnome.

G.M. = Gnome monosoupape.

S = Sunbeam.

Le Rh. = Le Rhone.

C = Clerget.

H.S. = Hispano Suiza.

* At full speed.

† At ground level.

‡ At 16,400 ft.

§ At 5,000 ft.

|| To 3,000 ft.

¶ To 5,000 ft.

British Air Service Losses

THE casualties in the Royal Air Force from April 1, 1918 (the date of the fusion of the R.N.A.S. and the R.F.C.), to November 11, 1918 (the date of the signing of the Armistice), have already been announced. These figures are recapitulated as follows:—

	Killed.	Wounded.	Missing, including Prisoners.	Interned.
Officers	1,551	2,357	1,612	45
Other ranks	1,129	631	225	39
Total	2,680	2,988	1,837	84

The grand total of the above casualties is 7,589, and it is this total which has to be added to the naval and military casualties, already published by the Admiralty and War

Office, in order to get the aggregate war casualties. The R.N.A.S. casualties and R.F.C. casualties to March 31, 1918, are included in the totals published by the Admiralty and War Office.

The casualties in the Flying Services for the whole period of the War, both before and since the amalgamation of the R.N.A.S. and the R.F.C., are as follows:—

	Killed.	Wounded.	Missing, including Prisoners.	Interned.	Total.
Officers	4,579	5,369	2,794	45	12,787
Other ranks	1,587	1,876	334	39	3,836
Total	6,166	7,245	3,128	84	16,623

The casualties shown in these totals include all officers and other ranks serving with the Flying Services during the War.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

SPECIAL COMMITTEE MEETING

A SPECIAL MEETING of The Committee was held on Tuesday, January 28, when there were present:—Brig.-Gen. The Duke of Atholl, K.T., M.V.O., D.S.O., in the Chair, Lieut.-Col. Spenser D. A. Grey, D.S.O., R.A.F., Lieut.-Col. F. K. McClean, Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Lieut.-Col. Alec Ogilvie, Mr. T. O. M. Sopwith and Lieut.-Com. H. E. Perrin, R.N.V.R., Secretary.

Election of Members.—The following New Members were elected:—

H. H. R. Alderson.
Charles V. Allen.
B. Baines.
Lieut.-Col. W. C. Bersey.
James Craig.
Major W. H. Ewen, R.A.F.
Lieut. E. W. Fleming.
Lieut. H. J. B. Franks.
Lieut. N. W. Kirkby.
G. F. Luke.
Major S. Nixon, R.A.F.
Major John Fagan Potts, R.A.F.
Lieut. A. S. F. Reeves.
W. E. Rootes.
Capt. J. D. Seal.
N. J. Smith.
Lieut. P. E. H. Van Baerle.
Lieut. L. W. Waddell.
Lieut. H. Wadsworth.

Deputation to the Under-Secretary of State for Air.

The report of the deputation to the Air Ministry on January 28, 1919, was received. The following formed the Deputation:—Brig.-Gen. The Duke of Atholl, K.T., M.V.O., D.S.O., Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., Lieut.-Col. F. K. McClean, Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Mr. T. O. M. Sopwith, Lieut.-Com. H. E. Perrin (Secretary), and Lieut. B. Stevenson (Assistant Secretary).

"Daily Mail" £10,000 Cross-Atlantic Flight

It was decided that the Regulations governing the Prize should be amended so as to exclude persons of enemy origin from taking part. It was further decided that no aeroplane of enemy origin or manufacture might be used. (The full regulations appear with these notices.)

Annual General Meeting.—It was decided to hold the Annual General Meeting of the Club on Monday, March 31, 1919.

Federation Aeronautique Internationale.—The first Meeting of the Inter-Allied Bureau of the Federation Aeronautique Internationale since the War will probably be held in Brussels at an early date. It was decided that the Club should send delegates to attend on behalf of Great Britain.

"DAILY MAIL" £10,000 PRIZE Cross-Atlantic Flight

(Under the Competition Rules of the Royal Aero Club.)

The Proprietors of the "Daily Mail" have offered the sum of £10,000 to be awarded to the aviator who shall first cross the Atlantic in an aeroplane in flight from any point in the United States, Canada, or Newfoundland to any point in Great Britain or Ireland, in 72 consecutive hours. (The flight may be made either way across the Atlantic.)

Qualification of Competitors.—The competition is open to persons of any nationality not of enemy origin, holding an Aviator's Certificate issued by the International Aeronautical Federation and duly entered on the Competitors' Register of the Royal Aero Club.

An Aircraft Exhibition at Newcastle

THE aircraft exhibition under the auspices of the R.A.F. at the No. 9 A.A.P. Aerodrome, Town Moor, Newcastle-on-Tyne, is to be opened on Wednesday next by Maj.-Gen. G. C. Cayley, C.B., commanding the N.W. Area, R.A.F. As already announced, the exhibition will comprise practically all types of British machines and a number of enemy machines, working models and aircraft engines.

There will also be demonstrations of aeroplane rigging, engine fitting, wireless telegraphy, gun-firing, photography

No aeroplane of enemy origin or manufacture may be used.

Entries.—The Entry Form, which must be accompanied by the Entrance Fee of £100, must be sent to the Secretary of the Royal Aero Club, 3, Clifford Street, London, W. 1, at least 14 days before the entrant makes his first attempt.

No part of the Entrance Fee is to be received by the *Daily Mail*. All amounts received will be applied towards payment of the expenses of the Royal Aero Club in conducting the competition. Any balance not so expended will be refunded to the competitor.

Starting Place.—Competitors must advise the Royal Aero Club of the starting place selected, and should indicate as nearly as possible the proposed landing place.

All starts must be made under the supervision of an Official or Officials appointed by the Royal Aero Club.

Identification of Aircraft.—Only one aircraft may be used for each attempt. It may be repaired en route. It will be so marked before starting that it can be identified on reaching the other side.

Stoppages.—Any intermediate stoppages may only be made on the water.

Towing.—Towing is not prohibited.

Start and Finish.—The start may be made from land or water, but in the latter case the competitor must cross the coast line in flight. The time will be taken from the moment of leaving the land or crossing the coast line.

The finish may be made on land or water. The time will be taken at the moment of crossing the coast line in flight or touching land.

If the pilot has at any time to leave the aircraft and board a ship, he must resume his flight from approximately the same point at which he went on board.

General.

1. A competitor, by entering, thereby agrees that he is bound by the Regulations herein contained or to be hereafter issued in connection with this competition.

2. The interpretation of these regulations or of any to be hereafter issued shall rest entirely with the Royal Aero Club.

3. The competitor shall be solely responsible to the officials for the due observance of these regulations, and shall be the person with whom the officials will deal in respect thereof, or of any other question arising out of this competition.

4. A competitor, by entering, waives any right of action against the Royal Aero Club or the proprietors of the *Daily Mail* for any damages sustained by him in consequence of any act or omission on the part of the officials of the Royal Aero Club or the Proprietors of the *Daily Mail* or their representatives or servants or any fellow competitor.

5. The aircraft shall at all times be at the risk in all respects of the competitor, who shall be deemed by entry to agree to waive all claim for injury either to himself, or his passenger, or his aircraft, or his employees or workmen, and to assume all liability for damage to third parties or their property, and to indemnify the Royal Aero Club and the proprietors of the *Daily Mail* in respect thereof.

6. The Committee of the Royal Aero Club reserves to itself the right, with the consent of the Proprietors of the *Daily Mail*, to add to, amend or omit any of these rules should it think fit.

1 February, 1919.

Offices: THE ROYAL AERO CLUB,

3, CLIFFORD STREET, LONDON, W. 1.

H. E. PERRIN, Secretary.

&c., as well as displays of flying by both airships and aeroplanes.

The Cape to Cairo Flight

INFORMATION available from an authoritative source indicates that the surveying parties who are looking out suitable sites for air stations on the Cape-Cairo route are finding their undertaking anything but a light one. The work involves a large amount of transport of stores, petrol, spare parts for several makes of machines, and the setting up of repairing shops with competent staffs.

RIGGING

THE ERECTION AND TRUEING-UP OF AEROPLANES.

By F. W. HALLIWELL, A.M.I.A.E.

(Concluded from page 134)

Final Erection

WHEN the fuselage, wings and various other components are returned from the dope shop, the complete machine is ready for the final erection. It is the general practice to set the fuselage up to flying level before commencing erection, but with some machines it will be found advantageous to erect the wings in their place, and connect up the wires, and also erect the tail plane, before setting up the machine to flying level for trueing. With machines of the type in which the top longeron forms the datum line, it is only necessary to place a spirit level upon the longerons, in order to see when it is level longitudinally, and across the two top

measure the stagger (see Fig. 11), adjusting the side bracing wires until this is correct, and equal on each side.

It is now necessary to see that the centre section is positioned symmetrically above the fuselage. This can be checked by dropping a plumb line on each side of the fuselage and measuring the distance "A," shown in Fig. 11; this must be equal. Adjust the transverse bracing until it is so, and all wires being uniformly tensioned, lock the turnbuckles. It is wisest to check the incidence of the centre section, as if this is wrong it will throw the whole of the wings out; the incidence angle is shown in Fig. 11, and is easily checked by an Abney level. This is an instrument consisting of a

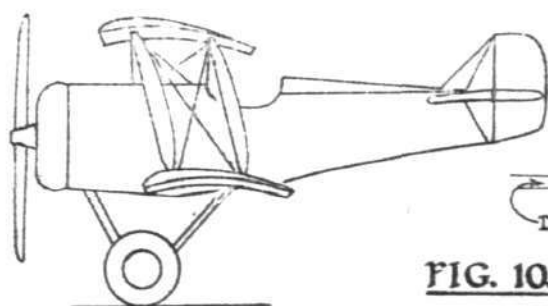


FIG. 10.

longerons, to check it laterally. With the other type, a straightedge should be clamped to the fuselage, lining up with the datum line marked upon the struts, and the spirit level used on this. For a machine in which neither the engine bearers nor the longerons nor yet the fuselage axis correspond to flying level, it should be set up to the correct angle with the bottom longeron, if this is straight, or some other member which is straight, if the longerons are not. When in flying position the machine should be supported by, and clamped to, a trestle underneath the tail end, care being taken that the trestle is placed underneath a transverse panel in the fuselage, and not where the longerons are unsupported, and choked up underneath the undercarriage struts, or if a suitable place cannot be found here, supported by another trestle placed somewhere in front of the undercarriage. Adjustable trestles will be found very convenient for this purpose. Having got the machine into flying position and made sure that it is securely supported and clamped, the erection of the wings can now be proceeded with. The best and quickest method can only be found by experience for each individual type of machine, but for all the principles are the same. Where a machine has two or more interplane struts on each side, time can nearly always be saved by erecting each pair of top and bottom planes, and connecting up the wires enough to hold them together, before lifting the complete cell up into position on the fuselage. The majority of present-day machines can be placed in one or other of three types, for the purposes of erection and trueing-up. We will consider the simplest type first, this; as shown in Fig. 10, can be regarded as typical of all scout machines.

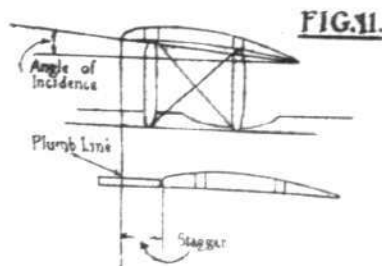
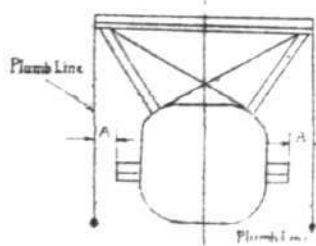
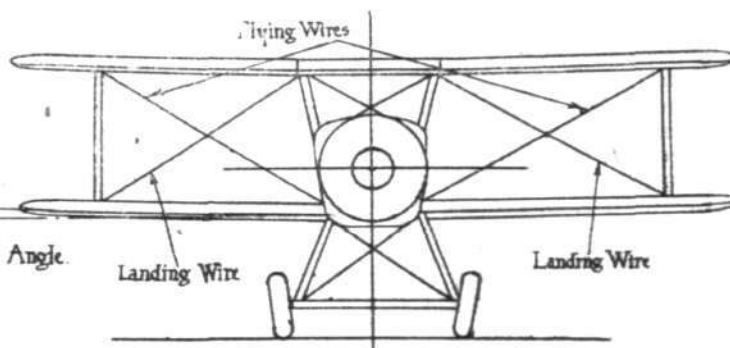


FIG. 11.



The first operation is the erection of the centre section, this should be put up, care being taken that the struts are bedded home in their sockets, and the transverse and side bracing wires connected up. Whether or no it is advantageous to true up the centre section before proceeding further, depends upon the machine. If there are extensions of the lower plane built permanently upon the fuselage (forming sidewalks), and the centre section extends over these upon each side, it is best to true it up right away. To do this, drop a plumb line from the leading edge at each end, and



straightedge with a protractor mounted upon one end; with the protractor is incorporated a spirit level, which enables the straightedge to be held at any angle, and the angle read by adjusting the protractor until the bubble in the level is reading correctly. If an Abney level is not available, a board can be cut to the correct angle with one end left level as shown in Fig. 12. Then by holding the board so that the angled portion is lying across the leading and trailing edges of the wing, it can be seen if the angle is correct by noticing if the spirit level is reading truly. If there is an error, the amount cannot be read by this method, as it can by an Abney level. It has been found convenient with some up-to-date scout



FIG. 12.

machines, when erecting in a factory, to true up the centre section to a jig, which fits into all four wing-spar sockets, positioning them immovably, as regards incidence and stagger. One of these jigs is used on each side, and measurements are taken from a projecting centre point on each, to the stern-post, and the transverse cross-bracing of the centre section adjusted, until these measurements are equal. The whole is then locked up, and centre section is finally true. It is not considered necessary by some erectors to check the incidence of the centre section, as if the stagger is correct, and the strut lengths are correct, and the whole positioned truly central, the incidence must of necessity be right. The centre section now being true, the lower planes should be put up in position and the landing wires connected up; these will take the weight of the wings. The upper wing should be lifted up into position, and the locking rods, or bolts,

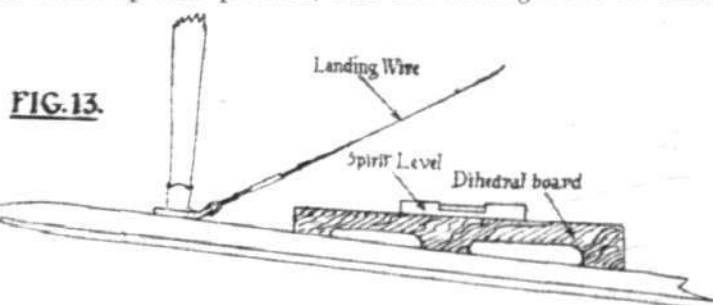


FIG. 13.

inserted, while another man is fitting the interplane struts into their sockets on top and bottom wings, it having been previously ascertained that the struts will bed right home. The flying wires should then be connected up, and wings are

erected, and ready for trueing. The first operation is to adjust the wings to the correct dihedral angle. Most present-day machines are built with a dihedral angle, in order to assist in obtaining lateral stability. Fig. 10 shows clearly where the dihedral angle can be measured. It is adjusted by the landing wires and checked most conveniently by an Abney level, as previously described for measuring the incidence, or, alternatively, a dihedral board, which should be made as shown in Fig. 13, the correct dihedral angle being cut on the underside of the board, with the top as horizontal. Then, when placed on the main spars, if the dihedral is ad-

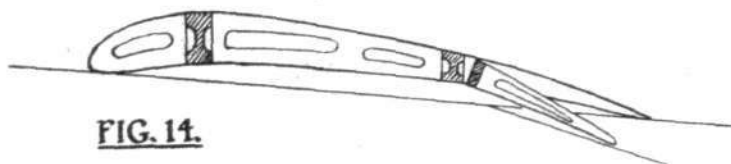


FIG. 14.

justed correctly, the spirit level will read true. Both the front and rear main spars should be checked, and adjusted by means of their respective landing wires until the dihedral is correct on either. Then the flying wires should be tightened up until they are just in tension, but not under load. When the dihedral is right, if the interplane struts are all correct length, and the centre section is properly true, the incidence should be correct everywhere. This should now be checked at intervals along the lower wing with an Abney level, or incidence board, exactly as described for the centre section. It is not generally thought necessary to check the dihedral and incidence on the top plane, but if there is any doubt about a particular machine, it is wisest to do so. Should the incidence be found incorrect, at any point, it should be adjusted by the landing wire to the rear spar at that point, and the dihedral re-checked on that spar. If the dihedral then shows an error, it is probable that the wing spar is slightly warped.

The wing spar should then be taken off, and sent back for retrueing. After checking the dihedral and incidence, the cross bracing wires between the front and rear interplane struts, sometimes called incidence wires, should be tautened

on its main spar or spars; also the fin should be checked vertically, with a plumb line. Care should be taken after trueing, to see that all turnbuckles are properly locked with keep wires, as previously described. All that now remains is to connect up and adjust the controls. These consist of the ailerons, for lateral control, the elevators, for longitudinal control, and the rudder, for directional control. The exact manner in which these controls are operated varies with different machines, as does their exact adjustment, but in general the ailerons should be held just below their neutral position (as shown in Fig. 14) and the control column packed, or tied, into its neutral position, usually vertical, and the control cables adjusted to be just taut. The exact amount of droop allowed the ailerons varies with each type, and is only found by experience. The control column still being held in its neutral position, the elevators should be secured in their neutral position, and the control cable connected so that the slightest movement of the column produces a corresponding movement in the elevators. Care should be taken to see that the right wires are connected to the top and bottom levers of the elevators, so that a forward movement of the control column drops them, and a backward movement brings them up. The rudder bar should be blocked or tied into its neutral position, and the cables should be connected up just taut, when the rudder is neutral. The movement of the controls should always be checked, in order to see that the full travel is obtained, and that sufficient slackness has been allowed to enable the wires to operate easily. If the engine has been tested, the machine is now ready for flight.

The second type of machine is shown in Fig. 15; most two-seaters used for bombing and reconnaissance approximate to this type. In erecting machines of this class, it is not always advisable to finally true up the centre section before putting the wings on. The machine should be packed up and secured in flying position, and the centre section pulled up approximately true as regards stagger, then either trammed square from the front, or adjusted until the struts are vertical. Each pair of top and bottom wings should be erected separately, with the wires tightened up enough to hold the wings together. They are then ready for lifting into

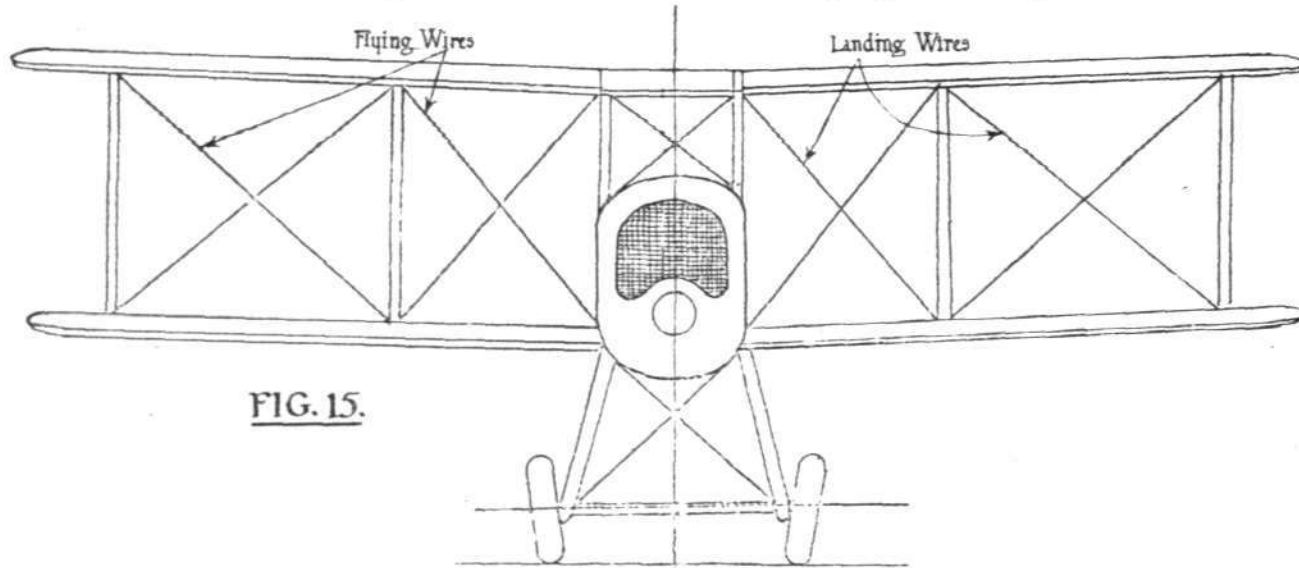


FIG. 15.

up just sufficiently to brace the struts. It is incorrect to attempt to adjust the incidence by these wires; they should always be left until last, and nothing adjusted by them. All the wires are now adjusted, and should be uniformly tensioned, but it must be remembered that the landing wires are supporting the whole weight of the wings, and, therefore, are under load already. Finally, the stagger all along the wings should be checked by dropping several plumb lines from the top leading edge, and measuring the distance to the bottom leading edge. This should not vary more than $\frac{1}{4}$ in. at any point, though small errors do not matter, provided they are equal at equidistant points on each side of the fuselage. Here again if the centre section was accurately true, and the wings are correct, the stagger must be right for the whole span. A conclusive check after the final trueing, is to measure from the centre line of the front interplane struts, at the bottom wing spar, to the sternpost; if the distances are equal the wings are laterally square. Should the tail plane be a fixed one, if it is set at an angle of incidence, it should be checked for this, and adjusted by its own stay wires, and in any case it should be trued with a spirit level and adjusted until it is laterally true; the level being used

position on each side of the fuselage; meanwhile, the tail plane may be put on and trued up exactly as described for the scout type. If the machine is fitted with an adjustable tail plane (adjustable when in flight), care should be taken, when the control is connected up, to see that the tail plane is in its neutral position when the pilot's control wheel is set for neutral. The wings being in position, and the hinge bolts locked, the dihedral should be adjusted by means of the landing wires, beginning at the inside bays. Having got one bay true, proceed onwards to the next, testing the angle by an Abney level, or dihedral board, as already described. When the dihedral is correct, the flying wires should be just tautened up. It is important that the centre section should be true laterally, that is, the centre line of the centre section must be exactly over the centre line of the fuselage, and in the type shown in Fig. 15 the centre section struts must be absolutely vertical; before the wings are erected, and the dihedral adjusted. Then check the incidence all along the bottom wing in the same way as for the scout type, and drop plumb lines at intervals all along the span, from the leading edge of the top plane, and beginning near the fuselage, check the stagger; adjusting the centre section side

bracing wires until the stagger is correct on both sides of the fuselage.

There is rather more likelihood in machines of this type, with two or more interplane struts on each side, that the incidence may be out towards the wing tips; this must be corrected by adjusting the landing wires to the rear spar at the point showing the error. If the wing spar sockets are positioned correctly on the fuselage, and the dihedral angle is adjusted to the same for each spar, obviously the incidence must be the same all along the wing; unless one of the spars

fitted, as is sometimes the case, from any point on the front of the fuselage, to the centre section, or wings, care should be taken not to put too much tension on these, as when in flight they will tighten up further under load. The tail plane and controls should be adjusted in the manner set out for the preceding types.

Notes on Wiring, etc.

The cross bracing referred to so often in the chapters on trueing-up can be put into three distinct categories. The lightest is piano wire, which is simply bright drawn steel of

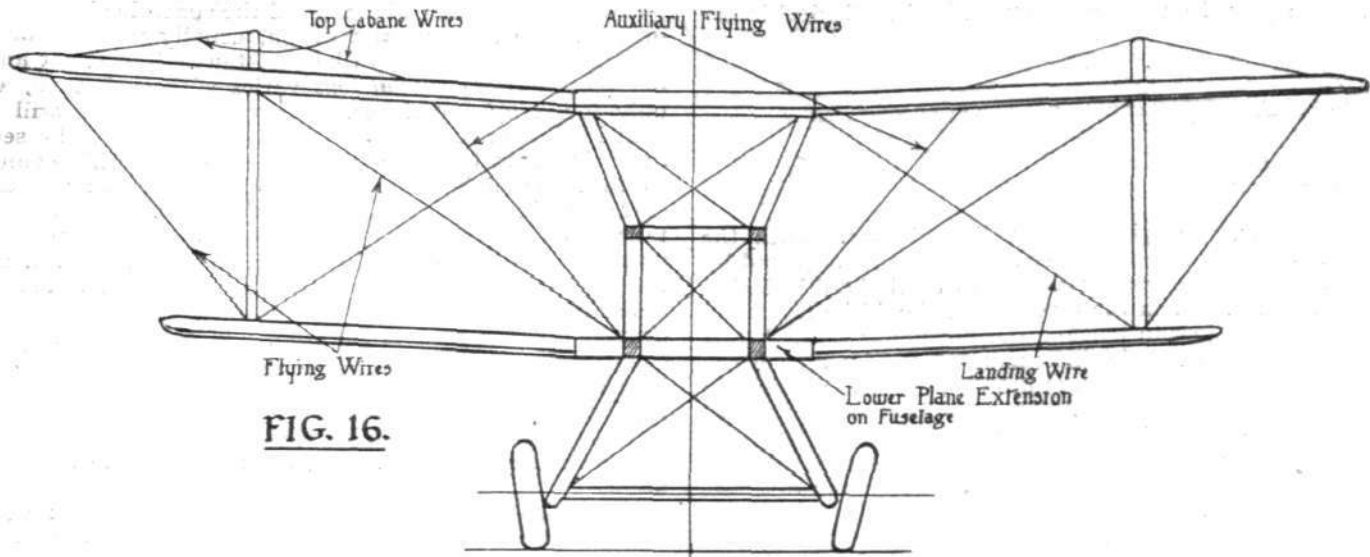


FIG. 16.

is out of truth. From which it will be seen that if care is taken to adjust the dihedral correctly for each spar, the incidence will be found correct everywhere when tested.

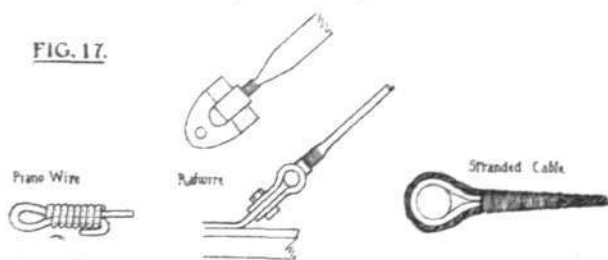
When the incidence and stagger have been finally checked, the cross bracing wires between the front and rear interplane struts should be tightened up, and the trueing is completed. It remains now to connect up and adjust the controls, in exactly the same manner as described for the scout type. There are machines which possess the main characteristics of one or other of the types already described, and also additional features, which may complicate a little the trueing up. Considering a machine such as is illustrated in Fig. 16, the procedure would be as follows. After getting the machine securely positioned at flying level, commence to true up the centre section. It will be noticed that, as shown in the figure, the centre section struts are inclined outwards. The first thing to do is to drop plumb lines from each side of the centre section, and adjust the front cross bracing wires until the distance from each plumb line to the top longeron is the same. Then adjust the side cross-bracing wires until the stagger, as shown by the distance, from the two plumb lines from the leading edge of the centre section (one on each side) to the leading edge of the lower plane extensions on the fuselage, is correct. Finally check the incidence, and if correct, lock up the wires and the centre section is true. The main planes can now be erected, putting on the lower planes first and landing wires, then the interplane struts and top planes. The flying wires will now be hanging loose; the dihedral should be adjusted in the manner already described, and checked along the lower wings; the flying wires can now be connected and just tightened up, and the incidence checked all along the bottom planes. The next operation is to run a line along each of the main spars of the top wings, fastened to some convenient fitting at each end, and adjust the auxiliary flying wires in conjunction with the top cabane wires, until the main spars are true. This is easily seen by noticing whether the spar runs parallel to the line all the

high tensile strength. The attachment of the wire to the fitting is made by a small loop in the wire itself (see Fig. 17), the size of this loop and the radius of it are important, as upon them depends the liability of the loop to extend and so slacken the wire when under load. The loop is kept closed by a small ferrule, made of coiled wire, which fits over the double ends of the wire, up to the shoulders of the loop, and is kept from slipping along the wire by turning back the loose end of the loop. This is shown in Fig. 17. These loops are best formed with pliers made for the purpose, which give the loop the right radius and size. This class of wiring is generally used for all fuselage bracing and the internal bracing of the wings. For all the external bracing, that is, the flying and landing wires of the wing structure and the undercarriage cross-bracing, either stranded cable or streamline wire known as Rafwire is used. While with the former, as with piano wire, turnbuckles must be fitted to allow of adjustment, with Rafwire, they are unnecessary, as the ends of the wire are butted and screwed, one end being screwed L.H. and the other R.H. These ends are anchored to the spars by an arrangement as shown in Fig. 17, consisting of a trunnion, which is held in position by a shackle, which in its turn fits on to the wiring plate on the spar. The thread upon the butted end of the wire screws into the trunnion, and being of opposite hand on each end of the wire, one complete turn of the wire will lengthen or shorten it twice the pitch. In adjusting a Rafwire always use two spanners, one at each end of the wire, near the screwed portion. Where cable is used for external bracing, it is generally double, and streamlined by means of wooden fairing bound to it. For anchorage, a loop is formed (see Fig. 17) in the end of the cable around the thimble, the loose end being spliced into the cable, and the splice served with waxed twine. At least three or four complete tucks should be given before tapering off the strands. Where the flying and landing wires cross, if Rafwires, they are sometimes liable to chafe with the vibration. This should be prevented by fitting a device known as an "acorn," and not by binding up with insulating tape, as is sometimes done. This "acorn" takes the form of a wooden cone, slotted in order to take the streamline wires and also keep them apart.

Aerodrome Adjustments

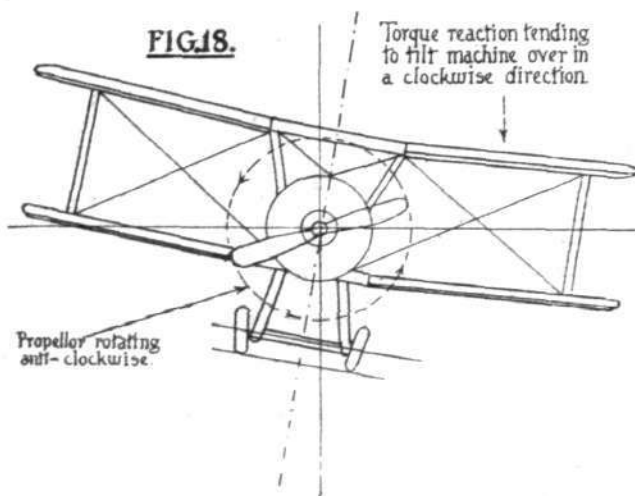
The sequence of operations described in the preceding chapters applies to the process of rigging an aeroplane from start to finish in the factory. We will now consider briefly what is usually necessary when assembling a machine just delivered from the works. Depending upon the distance, and method of transit, the machine will arrive at the aerodrome with the centre section and undercarriage already erected on the fuselage; these may, or may not, be trued up. If they are not, it is necessary to true them, and then proceed to erect the wings as previously set out. With new machines, it will

FIG. 17.



way along, exactly as described for checking the spars prior to covering the wings. The last operation is to check the stagger along the whole span in the usual way. This should be O.K., as the centre section is true. Should drag wires be

usually be found sufficient, when erecting at the aerodrome, to pull up the wings to the correct dihedral on both spars of the bottom planes, then check the incidence on the bottom planes, adjust up the flying wires and finally check the stagger. The tail unit may also be erected on the fuselage before it is delivered; if not, it will simply need erecting, and trueing-up horizontally. Care should be taken when adjusting the controls to see that they are working properly, and that there is no chance of them sticking. It is advisable to unlace the fabric along the fuselage—this is generally arranged to lace



up along the top longeron on one side—and inspect the fuselage generally, noticing that the cross-bracing wires are all uniformly tensioned, and properly locked. The actual rigger's work on machines of the scout type straight from the factory, should average about 16 to 20 man hours, and on larger machines from 25 to 30 man hours. After the first test flight it will often be found that the machine has settled down a little, and that the flying wires require about half a turn to one turn further adjustment. Any external drag wires may also require slightly tightening. Nothing further should

require any alteration, unless a bad landing has stretched the undercarriage, or centre section bracing wires. If the centre section is re-adjusted the stagger and incidence should be re-checked. In some cases a machine may be found to fly one wing down; when this is the case check the incidence of both planes and retrue if necessary.

In some of the older types of machines, what are known as "wash in" and "wash out" were employed in order to correct the effect of the propeller torque, which tends to tilt the machine over laterally in the opposite direction to that in which the propeller is running—see Fig. 18. "Wash out" is a decrease in the angle of incidence towards the wing tips. "Wash in" is an increase in the angle of incidence towards the wing tips. It will be seen that if the incidence is less towards the wing tip, then the lift at that wing tip will be less, and therefore the wing which tends to rise, may be given less lift to compensate for the torque reaction. This decrease in the incidence is obtained by adjusting the landing wires to the rear spar nearest the wing tip. It should always be ascertained, before trueing-up, whether either of the planes require to be adjusted in this manner. On present-day machines, however, it is not usually necessary. Should a machine fly nose heavy, or tail heavy, having a fixed tail plane, examine the incidence of the tail plane, and check the stagger of the main planes. Too much stagger will make a machine fly tail heavy, and too little will cause her to fly nose heavy. With a movable tail plane, this (the tail plane) can be adjusted in flight, until the machine balances; but if this was previously set correctly for horizontal flight, it should not be altered until the stagger has been checked.

If a machine fails to answer her controls smartly when in the air, it is probable that the control cables are a little too slack; these should be examined and altered if necessary.

It is important that all fairleads and guide pulleys for the control cables be kept well greased. A tear in the fabric may be easily repaired in the following manner. Firstly, clean around the rent with acetone, until all varnish and dope are cleaned off, then sew up the tear with twine, using a herring-bone stitch. Prepare a fabric patch by fraying out the edges, and dope the patch on over the tear, dopping over afterwards in the usual way.

HONOURS

R.A.F. Generals Honoured

It was announced on January 31 that the King has been pleased to give directions for the following appointments to the Most Distinguished Order of Saint Michael and Saint George in recognition of distinguished service in the field, in France and Flanders:—

C.M.G.

Col. (A. Brig.-Genl.) Henry Robert Moore Brooke-Popham, D.S.O., A.F.C.
Col. (A. Brig.-Genl.) Charles Alexander Holcombe Longcroft, D.S.O., A.F.C.

Mentioned for Work at Salonica

In the dispatch dated Nov. 1, 1918, from Lieut.-Genl. Sir G. F. Milne, K.C.B., K.C.M.G., D.S.O., Commander-in-Chief, British Salonica Force, the following are mentioned for gallant conduct and distinguished services rendered during the period May 1 to Oct. 1, 1918:—

Royal Air Force

Lieut. W. M. Ackery, D.F.C.; Sec. Lieut. R. Addison, M.C.; Capt. (actg. Maj.) F. A. Bates, M.C. (Denbigh Yec., T.F.); Lieut. J. A. Beeney, D.F.C. (Lond. R.); Lieut. J. Boyd, D.F.C. (H.L.I., T.F.); Lieut. and Hon. Capt. G. M. Brawley (Can. Local Forces); Lieut. W. J. Brown (Cam. Highrs., T.F.); Lieut. W. J. Buchanan, D.F.C.; Lieut. L. G. Candy; Lieut. J. P. Cavers; Lieut. L. J. Collier, I.F.C.; Lieut. (actg. Capt.) H. G. Davis, D.F.C.; Lieut.-Col. G. W. P. Dawes, D.S.O. (R. Berks. R.); Lieut. R. D. De Pass (Mdx. R., T.F.); Lieut. and Hon. Capt. S. B. Edwards; Lieut. H. T. R. Ford; Sec. Lieut. T. H. Formby (R.G.A., S.R.); Lieut. (actg. Capt.) R. G. Fyfe; Lieut. (actg. Capt.) A. G. Goulding, M.C., D.F.C. (Can. Local Forces); Lieut. C. B. Green, D.F.C. (Can. Local Forces); Sec. Lieut. G. H. A. Hart, D.F.C.; Lieut. (actg. Capt.) H. Hillier, D.F.C.; Maj. S. G. Hodges, M.C., A.F.C. (Wilts. R.); Capt. A. Knight, M.B.E. (N. Lan. R.); Lieut.

M. McEwan, D.F.C. (R.G.A., T.F.); Capt. A. F. Nimmo; Sec. Lieut. C. P. Primrose, D.F.C.; Lieut. W. Ridley, D.F.C. (Can. Engrs.); Sec. Lieut. and Hon. Lieut. H. E. Simmons, M.C.; Lieut. (actg. Capt.) C. H. Smith, M.B.E., R. of O.; Lieut.-Col. G. E. Todd (Welsh R.); Lieut. F. A. Whitfield. 4395 1st Air-Mech. W. W. Adkins; 26653 Mech.-Sgt. W. H. Crowden; 4628 2nd Air-Mech. E. J. H. Dommett; 2834 Mech.-Sgt. T. (new Sec. Lieut.) Dowsett; 19256 Mech.-Sgt. W. Hare; 21092 Sgt. Clk. S. V. Hicks; 11579 Mech.-Sgt. F. J. Kent; 880 Mech.-Sgt. A. H. Law; 2468 Mech.-Sgt. F. Love-lace; 3786 Ch. Mech. C. Ostler; 20403 Mech.-Sgt. I. Parker; 3745 Ch. Mech. W. E. Parkhurst; 2435 Flt. Sgt. C. H. Spry; 36763 Mech. Cpl. W. H. Stevenson; 87417 2nd Class Clk. F. Stoeri; 11778 Ch. Mech. W. Swinburn; 25459 Mech. Cpl. J. H. Thompson; 3779 Mech.-Sgt. E. G. Tiltman; 18011 1st Air-Mech. (actg. Mech. Cpl.) A. S. Wilson; 11403 Ch. Mech. T. S. Wootton.

Medals for Brave Nurses

It was announced in a supplement to the *London Gazette* on January 29 that the King has been pleased to approve of the award of the Military Medal to the following ladies for distinguished services in the field as recorded:—

Nursing Sister Helen Elizabeth Hansen, C.A.M.C.—For gallantry during an enemy air raid at Etaples, May 19-20, 1918. She worked devotedly in the operating room throughout the period of the severe bombardment, which lasted for two hours. Sister Hansen was ready for any duty, and exhibited qualities of coolness and courage.

Nursing Sister Beatrice McNair, C.A.M.C.—For gallantry during an enemy air raid at Etaples, May 19-20, 1918. She carried on her duties throughout the night without interruption, and throughout the period of the severe bombardment, which lasted for two hours. Sister McNair showed great solicitude for the patients in her wards, and was wholly unmindful of her personal safety.



Prince Albert to Go for His Wings

PRINCE ALBERT, who has been attached to the R.A.F. for some considerable time and has made many flights as a passenger, is now to qualify for his wings. The machine on which he will learn is one of the famous Avro 504 type, designed by Mr. A. V. Roe. It has just been completed at the firm's works at Hamble and sent across to the R.A.F. headquarters at St. Andrée, about 45 miles from Boulogne, where Prince Albert hopes to complete his training.

Mr. Churchill's Secretaries

THE Right Hon. Winston Churchill, M.P., has appointed Major C. L. Bullock, R.A.F., to be his private secretary at the Air Ministry, and Capt. H. S. Neville, R.A.F., to be his assistant private secretary.

General Seely Over London

A DEMONSTRATION of the progress made by lighter-than-air craft in overcoming the difficulties of bad weather, was given on the morning of January 31, when an airship of the "North Sea" type—the largest class of non-rigid airship—cruised through a thick mist and falling snow at a low altitude over London. The NS 16 came up from a station on the East Coast, and among those on board was Major-Gen. J. E. B. Seely, Under-Secretary of State for Air.

An Airship's Five-Day Test

CARRYING a crew of eight men and provisions for 124 hours, the U.S. dirigible C38 ascended on the morning of January 20, and, according to a message from Cape May, was still aloft on Monday, having weathered heavy winds. The members of the crew are to receive a large cash bonus if they stay aloft the full specified time.

DEMOBILISING THE R.A.F.

THE Secretary of State for Air has issued a statement explaining that the reasoning and method which apply to the formation of the Armies of Occupation will also govern, with minor exceptions, the formation and maintenance of the Royal Air Force necessary to co-operate with the land and sea forces required during the transition period.

On November 11, when the fighting stopped, there were in the Royal Air Force about 30,000 officers and 265,000 airmen. Of these, 1,742 officers and 51,727 airmen had been demobilised by January 24. It is intended to retain during the present year about 6,500 officers and 75,000 other ranks. The principles governing the rules for retention are the same as those which have been settled for the Army. Officers and airmen will be retained who were not enlisted and posted before January 1, 1916, have not attained their thirty-seventh birthday, or are not entitled to three or more wounded stripes. The remainder will be demobilised as rapidly as possible in the priority of the industrial groups now open.

The Forces of Occupation comprise :—

The FLEET.

The HOME ARMY.

The ARMY of the RHINE.

The ARMY of the MIDDLE EAST.

The DETACHMENT of the FAR NORTH.

The GARRISONS of the CROWN COLONIES and INDIA.

The Royal Air Force serving with the above will include :—

(a) Men serving on ordinary engagements.

(b) Men who have extended their service under Air Ministry Weekly Order 1560/1918.

(c) Volunteers.

(d) Men held to serve on "Duration of War" engagements.

On and after February 1, 1919, airmen belonging to the categories shown in the schedule below will be demobilised at the earliest opportunity. Men serving on pre-War conditions of service are necessarily retained for the duration of their engagements, except in so far as individuals may be released under paras. 9 and 10 of the schedule. All other airmen are specially retained for general service so long as their services are required during the occupation period.

1. All airmen now serving who—(a) entered the naval service before January 1, 1916, or who, having been entered in the "Class Y" Reserve of the Royal Navy, were called up for duty prior to that date; (b) were attested and joined the Regular Army for immediate service with the Colours before January 1, 1916; (c) after being attested or deemed to be enlisted and posted to the Reserve of the Regular Army, were called up or joined the Colours for continuous service before January 1, 1916; (d) enlisted in the Territorial Forces and were attested before January 1, 1916.

2. All airmen entered under pre-War engagements who have completed the active service or Colour portion of their current engagement.

3. All airmen serving on "Hostilities Only" or "Duration of War" engagements who attained the age of 37 years by February 1, 1919. Those who subsequently attain the age of 37 years will become eligible from the date of attaining that age.

4. All airmen who have been duly certified by the Ministry of Labour before February 1, 1919, as civil demobilisers or pivotal men, and whose demobilisation is ordered by the Air Ministry on A.F. Z. 32.

5. All airmen whose special release has been recommended by the Ministry of Labour before February 1, 1919, and whose demobilisation is ordered by the Air Ministry on Z. 556.

6. All airmen who belong to industrial groups which have been opened for demobilisation before February 1, 1919.

7. All airmen who, before February 1, 1919, are registered in their units as "slip men" on A.F. Z. 16A, or who have produced "contracts" for employment from their pre-War employers.

8. All airmen whose claims to return to their pre-War homes or businesses outside the United Kingdom have been approved, or may be approved, by the Officer i/c Repatriation Records, Winchester, on A.F. Z. 6.

9. All airmen who are entitled to three or more wound stripes.

10. All airmen whose releases on extreme compassionate grounds have been ordered by the Air Ministry, or whose releases on such grounds may be subsequently approved by the Air Ministry.

Any airman who is eligible for demobilisation under the

rules set out above, or who, having already served during the present war, has been demobilised or discharged, may, provided he is suitable, be permitted to volunteer for general service with the Royal Air Force for one year under the following conditions :—

(a) Rates of pay, bonus and allowances to be the same as for those men held to serve under this Order.

(b) Substantive rank will be retained or reassumed.

After February 1, 1919, all leave, except on urgent compassionate grounds, will be limited to those who are retained in, or who are accepted for, the Royal Air Force of Occupation.

All officers are liable to be retained under this Order, but if sufficient numbers of volunteers are forthcoming, those who wish to be demobilised will be released as soon as the exigencies of the Service permit.

A bonus will be payable, as from February 1, 1919, at the rates and under the conditions shown below, to all officers and other ranks who are definitely selected for retention for Royal Air Force service, and to all who volunteer and are accepted for such service. Until further service the bonus will be payable also to officers of the Royal Air Force holding permanent commissions in the Navy, Army, or Royal Air Force, and to airmen serving on ordinary engagements.

If any officers and other ranks due for demobilisation forthwith, and not specially selected for retention as above, have not been released by May 1, 1919, they will be credited, as from that date, with a bonus at half the rates shown below, under the conditions stated. (This half-bonus will be issued to them on their release.)

The following are the weekly rates of the full bonus :—

Officers.	Weekly Addition.	Other Ranks, including Cadets.	s. d.
Second Lieutenant ..	24 6	Aircraftman (2nd Class) ..	10 6
Lieutenant ..	28 0	Aircraftman (1st Class) ..	11 1
Staff Officer, 4th Class ..	31 6	Leading Aircraftman ..	11 8
Staff Lieutenant ..	35 0	Corporal ..	12 3
Captain ..	38 9	Sergeant ..	14 0
Staff Officer, 3rd Class ..	42 0	Flight-Sergeant ..	15 9
Chaplain, 4th Class ..		Warrant officer (2nd Class) ..	17 6
Major ..		Warrant officer (1st Class) ..	21 6
Staff Officer, 2nd Class ..		Flight-Cadet ..	5 3
Chaplain, 3rd Class ..		Boy ..	
Lieutenant-Colonel ..		Cadet—to be assessed on the	
Staff Officer, 1st Class ..		rank held.	
Chaplain, 2nd Class ..			
Officers of higher ranks and			
appointments ..	42 0		

These rates have been fixed in relation to those approved for the Army and the Navy, and their estimated cost is £3,000,000 per annum.

The bonus is not issuable to personnel locally enlisted in Malta, Egypt, etc., for special and not general service.

The bonus, when dependent on rank, will be based on the rank for which pay is drawn.

The bonus will be issuable to British service troops serving in India, under the same conditions as those applicable to troops elsewhere.

The period during which issue will continue for officers and men definitely retained will be that for which it is found necessary to maintain Forces of Occupation in various occupied territories.

As regards officers' gratuities, the bonus will not be taken into account in their assessment. Gratuities under Article 497 of the Army Warrant for Pay will not be earned beyond August 3, 1919, or the date of the termination of the War as defined by statutory authority, whichever comes first. Instatutions will shortly be issued as to the War gratuity issuable to officers holding permanent commissions; the same limit of time will apply.

As regards other ranks, the bonus is in addition to the special bounties for extension of service, and to any War gratuity earned. The War gratuity authorised for airmen serving on ordinary engagements will cease to be admissible for any period after August 3, 1919, or the date of the termination of the War as fixed by statutory authority, whichever comes first. The conditions governing the War gratuity for all other airmen stand as already published.

Except in the case of the half-bonus, issuable to certain officers and men on release, the bonus will be issuable with ordinary pay, monthly in the case of officers, and weekly in the case of other ranks. The bonus will not be issuable to airmen employed on civil rates of pay.

The bonus has no bearing on the scales of pay, separation allowance, etc., of the Air Force in the future, or on future terms of service. These will shortly be reconsidered in their entirety.

AIRISMS FROM THE FOUR WINDS

ALL persons, and the use of aeroplanes, of enemy origin are, by a resolution of the Royal Aero Club, with the approval of the *Daily Mail*, the donors, barred from taking part in the *Daily Mail* £10,000 prize for a cross-Atlantic flight.

MEMBERS of Parliament who have served in the R.A.F. have now an opportunity of banding themselves together for the future welfare of aviation, by joining the Air Service Parliamentary Committee, which has just been formed. Capt. Wedgwood Benn, D.S.O., D.F.C., is the Chairman, and Col. L'Estrange Malone the Secretary. Necessarily, by the conditions of membership, the numbers of this Committee can hardly be unwieldy.

AVIATION will, therefore, have two Committees to watch over the doings in the House concerning Air interests, as there is also the Parliamentary Air Committee (of which Mr. Joynson-Hicks, M.P., is Chairman) still going strong, as witness its chairman's recent letter in the Press upon the "Development of Flying."

MORE "Milestones" in aviation.

1. On January 31 the Air Ministry issued its first public aviation weather report, which as a matter of record we reproduce, the forecast for the next day, February 1, being as follows:—

"Low clouds, poor visibility and snow showers are likely to continue to-day over the British Isles. Cross-country flying will be dangerous on these accounts. However, on the west coast of England and in Ireland the conditions may show some change, giving higher clouds and better visibility, rendering conditions more favourable for aviation over these areas.

"The surface winds will remain between north and east, and be between 10 and 20 m.p.h. Wind at 2,000 ft. will be between E. and N.E., 15 to 20 m.p.h. over South-East England and 20 to 25 m.p.h. elsewhere over the British Isles. The upper wind may be a little stronger generally."

2. DECREE was made on January 29 by the Prize Court recognising the rights of the R.A.F. to Prize Bounty upon the same basis as Naval War Bounty, the particular case forming the precedent being the sinking of the German cruiser "Breslau" in a naval fight, in which R.A.F. pilots took part.

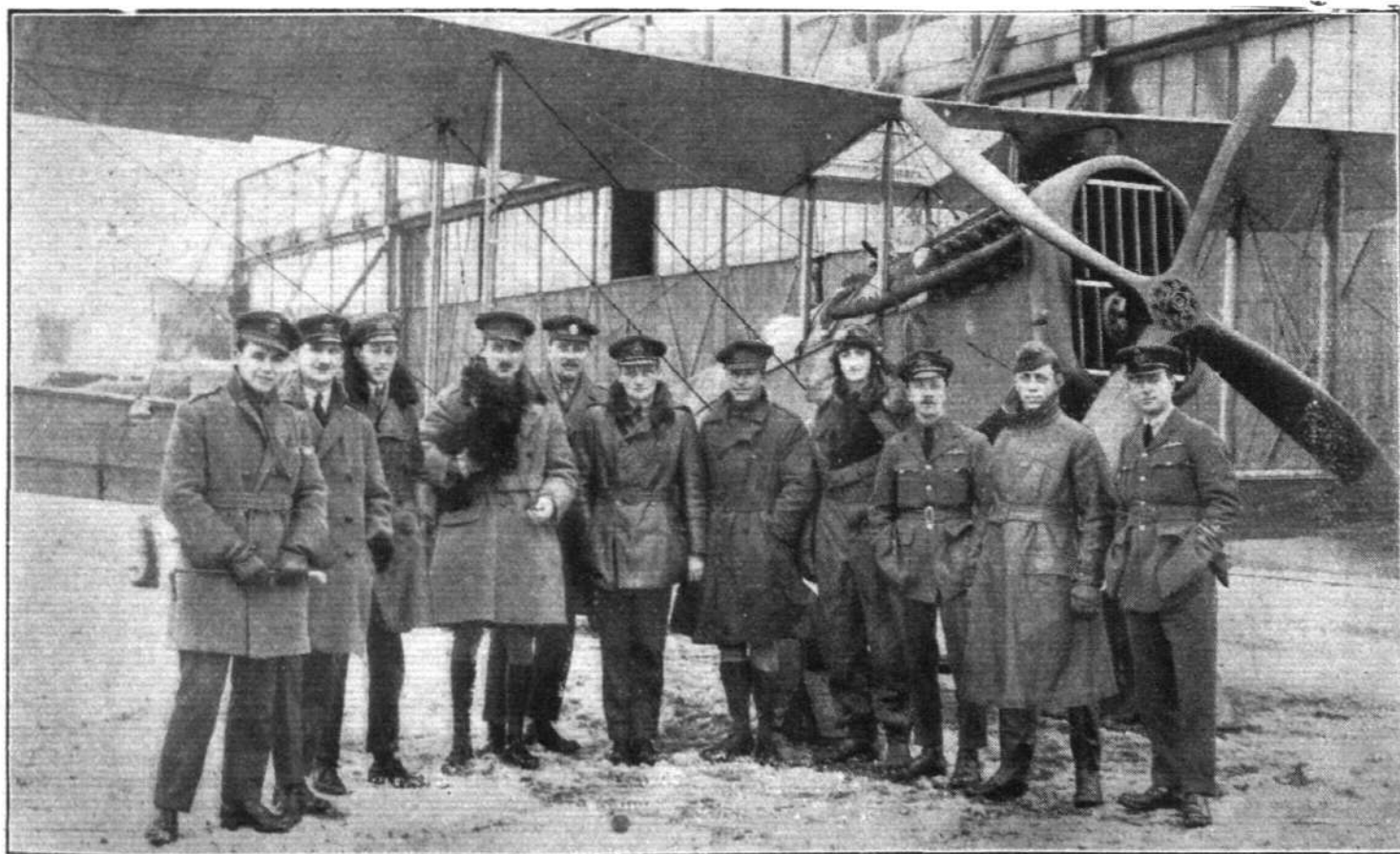
3. On January 28, dated from Paris, *The Evening Standard* headed its Peace Conference article by its special correspondent, Sir John Foster Fraser, as "By Aeroplane Service."

4. Dated January 29, 1919, from the Town Hall, Great Yarmouth, and signed by Mr. Edgar Stephens, Town Clerk, offers were invited by the county borough of Yarmouth to rent certain parts of the beach for the exclusive right to ply for hire for hydroplanes for pleasure trips. It is quite a businesslike document, as if the sport had been going on for years, and reads as follows:—

"The Corporation invite offers, by way of annual rent, payable yearly in advance, for the exclusive right for a term of three years to ply hydroplanes for hire for pleasure trips from such part of the beach at Great Yarmouth as lies to the north of Wellington Pier. Tenderers must give full particulars of the number and description of the machines proposed to be used. The hirer will be granted a site between Euston Road and Britannia Pier, from which he may embark and disembark passengers, and will also be allotted a site 100 ft. long by 100 ft. wide, and situate within one mile from the landing place, for the purpose of erecting thereon at his own expense a hangar, which must be constructed according to plans approved by the Corporation.

"The highest or any tender will not necessarily be accepted. Further particulars may be obtained at my office.

"Tenders endorsed "Beach Hydroplanes" must be received by me before noon on Saturday, February 22, 1919."



THE PEACE CONFERENCE AIR SERVICE.—A group of pilots at Hendon who have charge of the despatch- and mail-carrying machines between London and Paris.

THAT League of Nations for the bringing about of the abolition of war millennium looks like bearing funny sort of fruit. The early discussions in Paris are already having their effect, although we hardly think in the sense desired by the advocates of this proposed wonderful test of Human Nature. In America, for instance, Admiral Mayo evidently believes in the ideals of this Peaceful Project being attained, else why should he urge immediate naval expansion of the U.S. Naval Bill to enable our American brethren to construct the largest navy in the world? Thus does Admiral Mayo back up his peaceful ideas, embodying, amongst other novelties, a new type of battle cruiser and a new type of super-destroyer:—

"Nothing this Congress can do will be in excess of naval requirements. There was never a time when it was so necessary to be thoroughly prepared."

As Admiral Mayo—after estimating that the maintenance of a navy equal to that of Great Britain would cost a bagatelle of 200 million sterling yearly—admitted that he saw the prospect of a race between the U.S. and Great Britain for the biggest Navy, it may be as well here to record the Admiral's unashamed opinion of the Paris Peaceful intentions that "this idea of a League of Nations is rapidly getting down to a sewing circle, with no means of enforcement and no international police power."

AND Japan, by the launching in July next of a couple of super-cruisers, looks like getting ready for that L.O.N. Peaceful Penetration Policy.

AND it may well be the same with the world's aerial forces and their development, so far as that L.O.N. is concerned.

PROBABLY the next war will be between the world's nations, just to decide which of them shall boss the policing of the world in the air, on the sea and on land. It is to be hoped

Milan to Rome in a Caproni

A BRIEF message from Rome states that a Caproni biplane, carrying 10 passengers, flew from Milan to Rome—a distance of about 300 miles—in 4½ hours on January 29.

Civilian Aviation in the U.S.

CIVILIAN aviation, forbidden since the entry of the United States into the War, has been restored in that country.

The U.S. Peace-Time Air Service

It has been briefly announced that the plans of the American Army air service call for the employment of 2,000 officers and 22,000 men during 1920. The Department will use 1,003 aeroplanes, with a reserve machine for each man.

Aeroplanes for Wolf Hunters

A MESSAGE from Indianapolis on January 30 stated that

Crime in the R.A.F.



"Piling up" the Squadron Major's special bus.

scribes in great detail their construction and methods of flying, and gives a most remarkable description of aerial warfare on a huge scale between great flying armies. There is a quaint woodcut depicting a personal combat on the wing between two generals, which is, as far as I know, the first illustration of an aerial fight ever published. The book certainly deserves a place in the history of aviation, although, of course, purely a work of imagination.

"Peter Wilkins" appears in the list of new books in the *Gentlemen's Magazine* for November, 1750, and was reviewed later in the *Monthly Review*. I can hardly believe that Dr. Johnson could have been unaware of the existence of this work, and strongly suspect, with all due respect to his memory, that his reference to aerial warfare in 'Rasselas' nine years later was suggested by it."

aeroplanes had taken part in a wolf hunt along White River Bottoms, the airmen noting the wolves' movements, directing the hunters. Hardly cricket for the wolf, though!

Aerial Police and Fire Services in Canada

AMONG the suggestions for the utilisation of aircraft which are being considered in Canada, is one for a force of aerial firemen to patrol the whole of the province of Ontario day and night, in order to detect and give information concerning fires. It is felt that timely information with regard to such outbreaks would lead to such a saving of crops and forests that would more than repay the cost of the work. It is also stated that an air service is to be established in connection with the Canadian North-West Mounted Police. So altogether matters aviation look exceedingly promising in the Land of Snows.

the Peace Congress will not be adjourned for the purpose.

ANOTHER nasty reputation crash. This time it's Dr. Johnson, who for quite a while has been wearing a miniature halo for his foretelling so minutely in the long ago what was to happen with flying in the present decade—or sooner. Now Douglas W. Thorburn butts in with an inspiration, antedating by nine years the prophetic picture by Dr. Johnson. Mr. Thorburn takes the shine off the Doctor's reputation as a prophet as follows:—

"I have not yet seen any reference to the fact that an earlier author made extensive references to the same idea. 'Rasselas' was hastily written in 1759, but I have in my possession a copy of 'The Life and Adventures of Peter Wilkins,' by Robert Paltock, which was published in 1750, and which appears to me to have inspired the reference to flying in the former book.

"Robert Paltock was a bencher of Clement's Inn, and little is known about him save that he was of Cornish origin. His story, which is one after the style of Gulliver's Travels or Robinson Crusoe, deals with the discovery of a land inhabited by a strange flying race. He de-

Personals

Casualties

Lieut. RICHARD ALEXANDER GATHORNE HILL, Somerset L.I., attached R.A.F., previously officially reported missing, now unofficially reported killed in action in command of "A" Flight, on August 12, 1918, at the age of 21, was the youngest son of Mr. and Mrs. C. Gathorne Hill, of Hazel Manor, Compton Martin.

Capt. CECIL FREDERICK KING, M.C., D.F.C., Croix de Guerre (avec Palme), who was killed on January 24 at the age of 20, as the result of a collision while flying at Sedgeford, Norfolk, was the son of Mr. and Mrs. F. H. King, Springfield Dukes, Chelmsford.

Capt. GORDON KEITH SMITH, M.C., R.F.C., 27th Squadron, previously reported missing in August, 1917, has now been reported killed, was the elder son of George Smith, of 131, Harrow Road, W.

Capt. ERIC JACKSON-BARSTOW, R.A.F., who was killed while flying near Caterham, Surrey, on January 27, aged 23, was the only son of Mr. J. J. Jackson-Barstow, D.L., and Mrs. Jackson-Barstow, of The Lodge, Weston-super-Mare.

Lieut. EDWARD CECIL BIRCH, R.A.F., who died at his home on January 26, at the age of 22, after a long and painful illness contracted on active service, was the younger son of Mrs. Birch, of "Chiltern," 4, Ellerton Road, Surbiton, and the late Lieut.-Col. G. F. Birch, J.P., D.L., of Clare Park, Farnham.

Sir BRYAN BALDWIN MAWDDWY LEIGHTON, ninth baronet, of Watlesborough, Salop, has died at his London residence from pneumonia and heart failure after three days' illness. Sir Bryan, who was 50 years of age, was lieut.-col. Westmorland and Cumberland Yeo., and formerly a captain in the Shropshire Yeo. He had seen considerable service abroad. When the great War broke out he passed through the Upavon Flying School, and saw service in France with the R.F.C. Taking a keen interest in the work of airmen, he himself made a number of daring parachute descents from aircraft in flight in order to test new devices. Sir Bryan married, in 1896, the year before his father died, Margaret, daughter of Major John Fletcher, of Saltoun, and had two sons. The elder, Major J. B. Leighton, M.C., Scots Guards, and squad.-commdr. R.F.C., was killed in May, 1917, while flying in France. The younger son, Capt. R. T. Leighton, Westmorland and Cumberland Yeo. and R.F.C., who now succeeds to the title, was shot down in an air fight over the German lines in August, 1917. He was badly wounded and taken prisoner, but returned to England recently.

Lieut. FREDERICK YORKE, R.A.F., who died on January 13 as the result of an aeroplane accident near Sunderland, was the youngest son of Rev. and Mrs. H. Lefroy Yorke, formerly of Rhyl, and now of Prenton, Birkenhead.

Married

Lieut. WILLIAM J. GORDON BARNES, R.S.F. and R.A.F., eldest son of Major Barnes, R.A., V.C., was married on January 21 at St. James' Presbyterian Church, Wood Green, to MARGARET MARSHALL, eldest daughter of G. R. MOFFAT, Esq., "Gowanlea," Bowes Park, London.

Lieut. PAUL STILWELL BRINSMADE, of the U.S. Air Force, son of Mr. and Mrs. Henry Newman Brinsmade, of New York City, was married on February 1 at Sunninghill Parish Church, Ascot, to Miss CATHARINE HAINES MACAFEE, second daughter of Mr. and Mrs. John Blair MacAfee, of The Mount, Ascot, and Renfrew, Ardmore, Pennsylvania, U.S.A.

Lieut. ERIC BURTON, R.E. and R.A.F., only son of the late Mr. W. M. Burton, of Chester, and Mrs. Burton, 12, Lauderdale Mansions, London, was married on January 20 at St. Swithin's, Bournemouth, to VERA CRESSY, only daughter of Mr. and Mrs. L. E. MARCKX, Woodthorpe, Bowdon, Cheshire.

Lieut. JOHN ALBERT EDGE, R.A.F., only son of Mr. and Mrs. J. W. Edge, of Manchester, was married on February 1 at All Saints', Eccleshall, to GRACE OLIVE, youngest daughter of Mr. and Mrs. George CLARK, "Hill Turrets," Park Head Sheffield.

Lieut. R. J. FETHERSTON, R.A.F., eldest son of Mr. and Mrs. James Mayfield Fetherston, of "Sandhurst," Hutton, Essex, was married on January 15 at the Presbyterian Church, Liverpool, to PHYLLIS, daughter of Mrs. RANDOLF BROWN, of Liverpool.

Lieut.-Col. J. L. FORBES, R.A.F., son of the late Capt. J. A. Forbes, R.N., was married on January 28 at the Chapel Royal, Savoy, to MARJORIE, widow of Capt. Philip PICOT, and third daughter of Sir Thomas and Lady Putnam, of Greylands, Darlington.

Lieut. PHILIP MAITLAND HODDER, R.A.F., youngest son of the late Edwin Hodder, F.R.G.S., author and biographer, of London, was married on January 23 at Amherst, Nova Scotia, to GRACE, youngest daughter of Rev. J. DONKIN, of Amherst.

Capt. JOSHUA WALTER JAMES, R.A.F., eldest son of Mr. and Mrs. Joshua Walter James, of "North Bank," Totteridge, Herts, was married on January 21 at All Souls', Langham Place, W., to VIOLET ELLEN FRANCES EVANS, eldest daughter of Mr. and Mrs. Stanley Evans, of "Beaufront," Oakleigh Park, Whetstone.

Lieut. GEORGE DENHAM JENKINS, Hampshire Regt. and R.A.F., son of the late Capt. Edwin Walter Jenkins, of Bournemouth, was married on January 15 at St. Paul's, Knightsbridge, to ALISON (LEONORA), elder daughter of the late HARRY DOW WHITE, of Twickenham.

Major the Hon. MICHAEL KNATCHBULL-HUGESSEN, M.C., R.A.F., only son of Lord and Lady Brabourne, was married on January 22 at St. Peter's, Eaton Square, to Lady DOREEN BROWNE, youngest daughter of the Marquis and Marchioness of Sligo.

Major FREDERICK CHARLES VICTOR LAWS, O.B.E., Lincs. Regt. and R.A.F., was married on January 15, at St. Michael's, Chester Square, W., to MADELEINE GRACE MATHEWS WITHERS.

Capt. FREDERICK CLIVE AVERY WRIGHT, R.A.F., eldest son of the late J. F. Wright, and Mrs. Wright, Frimley Hall, Camberley, Surrey, was married on January 15 at Trotton Parish Church, to DOROTHY, second daughter of Mr. and Mrs. T. MIELL, Redthorn, Hill Lane, Southampton.

To be Married

The engagement is announced of Capt. RUPERT ATKINSON, M.C., D.F.C., R.A.F., elder son of the late Brenan Atkinson, of Shanghai, and of Mrs. Atkinson, Berkhamsted, Herts, and MARGARET WINIFRED, only daughter of Mr. and Mrs. H. King Hillier, Kingstackley, Sutton, Surrey.

A marriage has been arranged, and will shortly take place very quietly, between MARTIN DALE, of 32, Brechin Place, S.W., and ROSA E. BOULT, widow of Herbert S. Boulton, of Aigburth Lodge, Liverpool, and eldest daughter of Edward Edmondson, of Liverpool.

Items

Lieut. W. P. GARNETT, 3rd Royal Berks Regt., attached R.F.C. (flying Nieuport Scout), officially reported missing March 30, 1917, later unofficially reported shot down and killed near Douai on that date. Any information as to death and site of grave will be gratefully received by William Garnett, Backwell Hill House, West Town, near Bristol.

Anybody who can give information concerning Lieut.-Observer H. A. HAVILLAND-ROE, 214th Squad., reported missing since May 19, is requested to write to Mrs. H. Havilland-Roe, 6, Annesley Grove, Addison Street, Nottingham.

Lieut. C. J. MASON, 54th Squad., has been reported missing since April 21, 1918. Anyone who last saw him in fighting formation, believed near Ypres and Merville, is requested to give any information he can to Mrs. Mason, Wimbledon Common, Surrey.

Lieut. JOHN EDWIN PUGH, R.A.F., 210th Squad., reported missing November 10, was last seen flying Sopwith Camel F. 8509 at Bois de Manhu, south of Binche (south-east of Mons) flying east. Any information will be gratefully received by John V. Pugh, Allesley, Coventry.

Capt. LINDSAY JOHN ROBERTSON, R.A.F., barrister-at-law, formerly Professor of Hindu Law and afterwards Principal of the Law School, Bombay University, has been appointed by the Council of Legal Education Lecturer in Hindu and Mahomedan Law at the Inns of Court, in place of the late Sir Frederick A. Robertson, K.B.E.

The will of Major JAMES ARTHUR, Junr., R.A.F., of Davies Street, Berkeley Square, W., late of Brookhill, Sunningdale, killed in France, grandson of the late Sir James Coats, has been proved at £41,834.

THE CONSUTA SYSTEM IN AVIATION

EVEN in this age of rapid development, it is a far cry from the experimental hull of a steam-launch to that of a flying-boat, much more its plane construction or any further constructive aerial project.

So, purely from the aviation standpoint, it suffices to sketch how far, and from what origins, the "Consuta" system has been developed, and apparently perfected, by its inventor, Mr. S. E. Saunders, of Cowes, Isle of Wight, up to its use for the hulls of the largest flying-boats now in the Service. These, indeed, have displayed such merit that one might say that their successful production constitutes the greatest of Mr. Saunders' many achievements and distinctions. Even more than the O.B.E. with which he has recently been decorated.

The "Consuta" system itself is soon described, since it consists, essentially, of sewing together veneers of plywood laid in different directions, with layers of fabric between, to make a complete skin. Advisedly, the word "essentially" is used. For the mere working principle, as such, is to-day much what it was eighteen years ago when it first took shape—as awl and hand-stitching carefully selected veneers with copper wire—in the 40-ft. steam-launch "Consuta" built to be the umpire's boat at Henley, when its weight even then was established at 2 lbs. per square foot, including frames, keel and longitudinals.

But its development, up to its present stage of wholesale and purely mechanical production of a wooden fabric almost as the web leaves the loom and in like quantity, is not only the result of eighteen years' incessant work and experiment—after all the record of many inventions—but of both work and experiment continued in the pursuit of an ideal of commercial as well as mechanical perfection, long after most men would have considered the result good enough to stand. So that to-day's sheet construction comes out at considerably less than 1 lb. per square foot: at which, remembering that it can be made gastight, it appears to offer great possibilities for rigid airship envelope construction.

Incidentally, the record of this development is also the history of that of the highest class of high-speed motor-craft known, as finally exemplified by the Duke of Westminster's "Ursula," champion for two years at Monte Carlo, and thus finally barred from further competition—of the displacement type—and by Mr. Mackay Edgar's "Maple-Leaf IV"; the hydroplane which won the International motor-boat race—between the United States and ourselves as defenders and challengers—two years in succession, piloted by Mr. T. O. M. Sopwith.

Here it may be usefully interpolated, for better comprehension of the purpose as well as the possibilities of the "Consuta" system, that, structurally, the basis of its ideal is the "coque"; the French description of any hollow self-contained structure from an egg-shell to a ship's hull. The former gives the best definition, since both its shape and the cohesive nature of its material give it the utmost resistance to both internal and external stresses for a given weight, that is known to exist. And as this form, the egg-shell, is merely a rigid skin, the constructional effort in the "Consuta" development has been to eliminate as far as possible, defects as to weight on the one hand, and of frame construction with its tendency to localise pressures and other stresses, on the other.

But the particular interest of the "Consuta" system from an aviation standpoint, and therewith Mr. S. E. Saunders' subsequent connection with the aero-industry, is this: that despite the existence of the Donnet-Leveque hydro-aeroplane, and even earlier, projects and original patents for the more efficient type which has the *whole of its after-body* clear of the water, little or nothing had been done in the British development of this variety of aircraft until, in 1913, the Mortimer-Singer prize was offered; when Mr. S. E. Saunders, in conjunction with Mr. Sopwith, designed a flying-boat—which Mr. Saunders built on the "Consuta" system—to win this prize. It will be remembered that wheels were fitted to lower from the sides of the hull to enable it to start from and alight on land, and that the motor fitted was a 100 h.p. Green. The easy success of this craft, as piloted by Mr. Harry Hawker with Lieut. Spenser Gray, R.N., as passenger, is also too recent history to have been forgotten.

This hull, however, was but the precursor of several others, as well as more ambitious aero-constructions; the most striking of which was the Perry-Beadle twin-tractor flying-boat, exhibited at the Aero Show of 1914, which had its lower main plane, tail plane, elevator, fin and rudder constructed on the "Consuta" system, as well as its hull.

With the outbreak of War, Mr. Saunders set out to build aeroplanes upon official patterns, and on the largest practicable scale; and so built extensive factories beside his original works at East Cowes, acquiring indeed practically all the immediately available land for the purpose, as well as more, further up the Medina, below Whippingham. However, for the time being, the Admiralty, despite their favourable experience with the "Consuta" system, as the only one apparently capable of standing the shock of heavy gunfire, as used in whalers and service-boats, appeared to have overlooked the flying-boat as a useful type.

Nevertheless, Mr. Saunders, with characteristic enterprise, continued to develop the system of "Consuta" manu-



Mr. S. E. Saunders, O.B.E.

facture to a further commercial stage for wholesale output; and latterly decided to employ huge sewing machines—of the Singer leather-stitching model many times enlarged—to stitch the veneers of plywood, after they had been laid upon and cemented to one another, with intermediate bonding layers of linen; the whole, as an immense "web" of composite wooden fabric, being hot-press-ironed upon long steel-faced tables. This, with the substitution of a special stitching twine for the former copper wire, brought the "Consuta" system to its present stage.

Thus, when the Admiralty decided to employ the flying-boat for submarine chasing, Mr. S. E. Saunders was ready; and the wholesale output of these hulls, practically at the rate of a score a week, became simply a matter of special organisation in his existing shops, and extending to still others at West Cowes. And that is little more than the bare bones of the story of the development of the Saunders "Consuta" system in the face of difficulties that would fill a volume, despite all seeming success in latter years. It is also a slight record of honours won—merely by ready for the foreseen emergency—many times over.

An Italian Airship Lost

WHILE engaged in a reconnaissance flight over Pontedera, Genoa and Albenga on the morning of January 28, an Italian airship, owing to motor trouble, had to come down

about 500 yards from its landing place. The crew got out and prepared to make the ship fast, but a sudden gust of wind caught it and, notwithstanding the efforts of the crew to hold the ship down, it broke loose and rapidly drifted out of sight. None of the crew was injured.

THE ROYAL AIR FORCE

London Gazette, January 21

Medical Branch.

Maj. A. V. J. Richardson to be Actg. Lieut.-Col. while employed as Lieut.-Col.; Jan. 10.

L. S. Goss (Surg. Lieut., R.N.) is granted a temp. comn. as Capt.; Oct. 1, 1918, seniority April 1, 1918. (Substituted for notification in *Gazette*, Jan. 7.) The following relinquish their comms. on ceasing to be employed:—Capt. H. Greenwood; Dec. 19, 1918. Capt. E. J. Boyd (Surg., R.N.); Dec. 31, 1918. Maj.-Gen. R. C. Munday, C.B.; Jan. 7, and retains the rank of Maj.-Gen. Capt. H. J. Shanley (Capt., R.A.M.C., T.F.); Jan. 15.

The following relinquish their comms. at their own request:—Capt. A. E. McCulloch; Jan. 13. Lieut.-Col. H. J. Hadden (Fleet Surg., R.N.); Jan. 14.

The notification in *Gazette*, Jan. 7 concerning Capt. F. B. Gillespy is cancelled.

Chaplains' Branch.

The following temp. appointments are made:—

Principal Chaplain for United Board.—Rev. S. J. Jones, M.C. (A.C.D.) is granted a temp. comn. as Chaplain with the relative rank of Lieut.-Col., and is granted the relative rank of Col. while employed as Principal Chaplain; Nov. 22, 1918.

Principal Chaplain for Wes.—Rev. R. Hall (A.C.D.) is granted a temp. comn. as Chaplain with the relative rank of Maj., and is granted the relative rank of Col. while employed as Principal Chaplain; Jan. 1.

Rev. J. H. Newell (Temp. Chaplain to the Forces, 4th Class, A.C.D.) is granted a temp. comn. as Chaplain with the relative rank of Capt.; Jan. 20.

Memoranda.

Lieut.-Col. (Actg. Brig.-Gen.) E. B. Gordon, D.S.O., relinquishes the actg. rank of Brig.-Gen. on ceasing to be employed as Staff Officer; Nov. 22, 1918.

The following Capts. are confirmed in the rank of Capt.:—G. A. Gooderham, H. Rampling, H. H. Gouyon, D.F.C., J. E. L. Hunter, E. Dickson, D.S.C., D.F.C., C. E. S. Lusk, G. Breadner, E. L. Pralle, H. B. Brenton, R. McDonald, R. V. Goodard, V. R. Scriven, A.F.C., C. W. Bailey, D. G. Donald, R. H. Daly, D.S.C., G. R. Hodgson, A.F.C., A. R. T. Pipon, D.S.C., A. C. Teesdale, R. E. Dean, W. T. S. Williams, D.S.C., S. Kemball, R. S. Sugden, J. W. Pinder, D.F.C., E. Pierce, A. M. Tidey, J. L. Gordon, D.F.C., E. M. King, D.F.C.

(Actg. Maj.) W. H. S. Aplin, and to retain his actg. rank without pay and allowances, F. S. Mills, D.S.C.

To be Hon. Capts.:—Sec. Lieut. (Hon. Lieut.) H. J. Barnham, Lieut. R. S. B. Beckett.

Prob. Flight Officer F. R. Carlin to be Hon. Sec. Lieut.

The following relinquish their comms. on ceasing to be employed:—Lieut. (Actg. Maj.) A. T. A. Dobson (Lieut., Hamp. R.); Dec. 2, 1918. Maj.-Gen. Hon. Sir F. Gordon, K.C.B., D.S.O.; Jan. 4.

The following are transferred to unemployed list:—Capt. (Actg. Maj.) F. C. O. Shaw; Jan. 9. Sec. Lieut. (Actg. Capt.) E. W. Vine; Jan. 10. Capt. H. M. Winstanley; Jan. 13.

Corrections to "London Gazette" No. 31098, Jan. 1, 1919.

The following Officers, whose names appear in the list of appointments to the Order of the British Empire are now correctly described:—Lieut. Col. (Actg. Brig.-Gen.) J. A. Houson-Crauford, C.B.E., Capt. (Actg. Maj.) E. C. Perrin, O.B.E., Maj. C. W. H. Pultford, O.B.E., Maj. A. A. E. Robinscn, O.B.E., Maj. (Actg. Lieut.-Col.) E. W. Stedman, O.B.E., Sec. Lieut. J. W. Hoskings, M.B.E., Sec. Lieut. H. J. C. White, M.B.E.

The second entry on page 93 of this *Gazette* relating to Lieut.-Col. F. R. Drake (R.G.A.) is cancelled.

The award of Commander of the Order of the British Empire, conferred on this Officer, is correctly shown on page 92.

London Gazette, January 24

The following temp. appointments are made at the Air Ministry:—

Staff Officers, 2nd Class.—And to be Actg. Majs. whilst so employed, 11 not already holding that rank:—(Ait.)—Maj. Hon. A. R. Boyle, M.C., vice Capt. (Actg. Maj.) C. M. Catlington; Jan. 10. (T.)—Capt. G. S. Ridgway, vice Maj. A. C. Robinson; Dec. 20, 1918.

Staff Officer, 3rd Class.—Capt. (now Actg. Maj.) R. A. Laws; June 1, 1918, to Sept. 25, 1918.

The following temp. appointment is made:—

Staff Officer, 3rd Class.—(Q.)—Lieut. (Actg. Capt.) J. A. Heather, and to retain his actg. rank whilst so employed; Jan. 8.

Flying Branch.

Lieut.-Col. P. H. L. Playfair, M.C., is appointed Comdt., Central Flying School; Jan. 17.

Lieut.-Col. A. J. L. Scott, M.C., to be Lieut.-Col. (A.), and relinquishes the appointment of Comdt., Central Flying School; Oct. 29, 1918.

Lieut.-Col. (Actg. Brig.-Gen.) E. B. Gordon, D.S.O., to be Lieut.-Col. (A.), and relinquishes the actg. rank of Brig.-Gen.; Nov. 22, 1918.

Maj. (Actg. Lieut.-Col.) F. W. Lucas to be Maj. (A'shp.), and relinquishes the actg. rank of Lieut.-Col. on ceasing to be specially employed; Dec. 22, 1918.

Cpts. to be actg. Majs. whilst employed as Majs. (A.):—G. L. Hartgill; Oct. 15, 1918. R. Gray; Jan. 14.

Cpts. to be Actg. Majs. whilst employed as Majs. (A. and S.):—F. N. Halsted, D.S.O., E. G. Hopcraft; Oct. 15, 1918.

Capt. (Actg. Maj.) At J. Michell-Clarke, M.C., to be Capt. (A.), and relinquishes the actg. rank of Maj.; Jan. 11.

Capt. L. H. Cockey to be graded for pay as Capt. whilst employed as Capt. (A.); Dec. 3, 1918.

Lieuts. to be Actg. Cpts. whilst employed as Cpts. (A.):—M. C. Hayter, W. D. Patrick; Nov. 1, 1918.

Lieuts. to be Actg. Cpts. whilst employed as Cpts. (K.B.):—D. D. O'Flaherty; Nov. 30, 1918. N. F. Bardell, G. M. Emerson, W. H. Muirhead, S. Smith; Dec. 1, 1918.

Lieut. F. C. Hoult to be Lieut. (A.), from (O.); June 26, 1918.

Sec. Lieuts. to be Actg. Lieuts. while employed as Lieuts. (K.B.):—L. R. Grice, A. C. Whittle, W. J. P. Woodhouse; Dec. 1, 1918.

Sec. Lieut. D. Simmons to be Sec. Lieut. (A'shp.), from (T.); Oct. 14, 1918.

J. C. Thompson (Temp. Lieut., R.E.) is granted a temp. comn. as Sec. Lieut. (A.), and to be Hon. Lieut.; May 31, 1918. (Substituted for notification in *Gazette*, Aug. 2, 1918.)

The following relinquish their comms. on ceasing to be employed:—Lieut. (Actg. Capt.) J. D. McCall (Capt., Quebec R.), Lieut. D. S. Milligan (Lieut., Alberta R.); Dec. 5, 1918. Sec. Lieut. (Hon. Lieut.) R. O. Campney (Lieut., Cen. Ont. R.), Lieut. H. D. Cunningham (Lieut., Nova Sco. R.), Sec. Lieut. R. M. Macdonald (Lieut., Manitoba R.), Sec. Lieut. W. G. Perry (Lieut.,

Quebec R.); Dec. 6, 1918. Sec. Lieut. C. B. Clark (Lieut. E. Ont. R.), Sec. Lieut. (Hon. Lieut.) T. E. Greer (Lieut., Sask. R.), Sec. Lieut. (Hon. Lieut.); J. T. Smeeton (Lieut., B. Col. R.), Lieut. H. S. Taylor (Capt., Nova Sco. R.) Dec. 7, 1918. Sec. Lieut. (Hon. Lieut.) E. D. Cameron (Lieut., W. Ont. R.) Sec. Lieut. G. H. R. Phillips (Lieut., Can. Engrs.), Lieut. H. W. Rick (Lieut., Quebec R.); Dec. 9, 1918. Lieut. J. F. B. Davies (Lieut., M.G.C.), Lieut. G. G. Granger (Lieut., E. Ont. R.), Lieut. J. H. Hudson (Lieut., Manitoba, R.), Sec. Lieut. (Hon. Lieut.) F. L. Johnson, M.M. (Lieut., Cen. Ont. R.); Dec. 11, 1918. Sec. Lieut. (Hon. Lieut.) G. F. Davies (Lieut., Can. F.A.), Lieut. O. S. Dunn, M.C. (Lieut., Cen. Ont. R.), Lieut. A. J. P. Estlin (Lieut., Fort Garry Horse), Sec. Lieut. (Hon. Lieut.) H. N. Foxwell (Lieut., Fort Garry Horse), Sec. Lieut. (Hon. Lieut.) A. G. Imlay (Lieut., Brit. Col. R.), Lieut. H. W. Johnson (Lieut., Brit. Col. R.), Lieut. (Actg. Capt.) J. F. Larson (Lieut., (Temp. Capt.), Can. F.A.), Lieut. S. A. Puffer (Lieut., Alberta R.), Lieut. (Actg. Capt.) T. L. Tibbs (Lieut., Alberta R.); Dec. 12, 1918. Sec. Lieut. (Hon. Lieut.) H. T. Creighton (Lieut., E. Ont. R.), Lieut. G. F. Dickason (Lieut., Sask. R.); Dec. 13, 1918. Sec. Lieut. (Hon. Lieut.) G. D. Dardis (Lieut., Can. For. Corps), Lieut. (Actg. Capt.) F. A. N. Haultain (Lieut., Cen. Ont. R.), Lieut. H. W. Johnson (Capt., Can. F.A.), Sec. Lieut. W. L. Taylor (Capt., Can. Inf.); Dec. 14, 1918. Capt. F. G. E. Sutton, M.C. (Capt., Sask. R.); Dec. 16, 1918. Lieut. T. E. Garside (Lieut., Alberta R.); Dec. 18, 1918. Sec. Lieut. (Hon. Lieut.) L. W. Sharpe (Cen. Ont. R.); Dec. 20, 1918. Lieut. W. P. Bunt (Lieut., Quebec R.), Sec. Lieut. (Hon. Lieut.) I. R. G. Jones (Capt., Welsh R., T.F.); Dec. 21, 1918. Lieut. (Hon. Capt.) D. B. Gray (Capt., Pioneers, Ind. Army), Lieut. H. S. Green, (Lieut., I.A.R.O.); Dec. 30, 1918. Lieut. J. P. McRae (Lieut., Can. A.S.C.); Jan. 2. Lieut. W. B. MacKay (Lieut., Cen. Ont. R.); Jan. 3. Sec. Lieut. (Hon. Lieut.) G. I. Carr (Lieut., Alberta R.); Jan. 4. Sec. Lieut. (Hon. Lieut.) C. H. Snow (Lieut., Can. Inf.); Jan. 20.

The following are transd. to unemployed list:—Lieut. C. L. Nightingale; Jan. 5. Sec. Lieut. N. Abrams; Jan. 6. Sec. Lieut. H. Davies, Capt. A. Mann; Jan. 7. Sec. Lieut. B. J. E. Anson, Sec. Lieut. W. Barnes, Capt. G. A. Hyde, M.C., Sec. Lieut. J. Milton, Sec. Lieut. G. J. C. Tigar; Jan. 8. Sec. Lieut. J. Gibson, Lieut. G. W. Lockhead, Sec. Lieut. G. V. L. Taylor, Lieut. J. A. Teasdale; Jan. 9. Lieut. J. C. Brooks, Lieut. W. M. Chowne, Sec. Lieut. J. Fraser, Sec. Lieut. M. P. Fraser, Lieut. A. L. King, Lieut. J. L. Langton, Lieut. E. M. Newman, Sec. Lieut. C. J. Pybus, Capt. E. L. L. Turnbull, Sec. Lieut. R. J. Winbolt; Jan. 10. Sec. Lieut. A. T. Batchelor, Sec. Lieut. T. N. Barling, Lieut. S. Blair, Lieut. H. A. Buckler, Sec. Lieut. S. Dumbell (K. L'pool R.), Lieut. W. X. Ganz (R. Welsh Fus.), Lieut. R. T. Goodyear, Sec. Lieut. H. Halborn, Lieut. (Hon. Capt.) T. G. Hyde, Sec. Lieut. A. S. McNaught, Sec. Lieut. A. E. Page, Sec. Lieut. J. H. Peters, Lieut. L. Wilson, Lieut. B. A. Walkerdine; Jan. 11. Lieut. J. A. Aldridge, Sec. Lieut. W. A. Barratt, Lieut. H. A. Blundell, Sec. Lieut. J. T. Duckworth, Lieut. G. B. Williams; Jan. 12. Lieut. A. M. Bannatyne, Lieut. F. C. Barracough, Lieut. A. H. Bird, Sec. Lieut. (Hon. Lieut.) K. F. Caird, Lieut. R. T. Edwards (R.F.A., Spec. Res.), Sec. Lieut. G. P. Giles, Sec. Lieut. W. W. Hewitt, Sec. Lieut. A. D. McDonald, Sec. Lieut. J. A. Spark, Sec. Lieut. K. J. Yeoman; Jan. 13. Lieut. (Actg. Capt.) N. E. Barracough, M.C., Lieut. J. Bowley, Sec. Lieut. H. H. Crofts (Yorks L.I., T.F.), Capt. R. E. Lainton, Sec. Lieut. E. A. Eames, Lieut. I. M. Harris (Lieut., K.R.R.C.), Lieut. J. G. Mair, Sec. Lieut. J. E. Mann, Sec. Lieut. C. N. Prentice; Jan. 14. Lieut. W. Bennett, Lieut. W. N. S. Chance (Worc., T.F.), Lieut. Hon. R. Cunliffe, Sec. Lieut. J. N. Dean, Sec. Lieut. H. A. Floyd, Lieut. W. H. Foster, Lieut. J. E. Hobson, Lieut. W. H. Keay (R.G.A., Spec. Res.), Sec. Lieut. R. B. Murray; Jan. 15. Lieut.-Col. T. W. C. Carthew, D.S.O.; Jan. 16. Lieut. L. H. Watkinson; Jan. 20. Sec. Lieut. S. M. Connolly; Jan. 21. Lieut. (Hon. Capt.) (Actg. Capt.) H. G. Fiske, Capt. (Actg. Maj.) S. G. Kingsley, M.C.; Jan. 23.

The following Lieuts. relinquish their comms. on account of ill-health, and are permitted to retain their rank:—A. L. Aldridge (contracted on active service), L. S. Brander, F. L. Gall, C. H. Russell (contracted on active service), R. G. Scott (contracted on active service); Jan. 25.

The following Sec. Lieuts. relinquish their comms. on account of ill-health, and are permitted to retain their rank:—W. Campbell, H. S. Fenton, J. H. Gardner, R. T. Owen; Jan. 25.

The appointment of Sec. Lieut. H. J. Evans (late Gen. List., R.F.C., on prob.) as Sec. Lieut. (A.) is antedated to May 12, 1918.

The appointment of Prob. Flight Officer E. E. Middleton (late R.N.A.S.) as Sec. Lieut. (A.) is antedated to May 12, 1918.

The notification in the *Gazette* of Oct. 11, 1918, page 11,976, concerning Lieut. J. Jackson (Nori. R.) is cancelled.

The notification in the *Gazette* of July 19, 1918, page 8,505, concerning W. E. Hall, is cancelled.

The notification in the *Gazette* of July 19, 1918, concerning E. C. Clarke, is cancelled.

The surname of H. M. D. Speagell is as now described, and not Steagell as in the *Gazette* of Sept. 13, 1918.

The notification in the *Gazette* of Jan. 7, concerning C. A. Macconchie is cancelled.

The surname of S. R. Hole is as now described, and not Holl, as in *Gazette* of Dec. 17, 1918.

The notification in the *Gazette* of Aug. 2, 1918, page 9,118, concerning Sec. Lieut. C. E. Watson (late Gen. List., R.F.C., on prob.) is cancelled.

The notifications in the *Gazette* of Dec. 12, 1918, concerning E. T. Roocroft and W. R. Kellough are cancelled.

The notification in the *Gazette* of July 30, 1918, page 9,013, concerning F. P. Cobden, is cancelled.

Administrative Branch.

Capt. L. P. Ferris-Scott to be Actg. Maj. whilst employed as Maj.; Jan. 6.

Cpts. to be Cpts.:—A. G. Shortt, from (T.); Aug. 11, 1918. J. S. Leslie, from (A.); Sept. 10, 1918. A. W. MacIlwaine, from (S.O.); Oct. 24, 1918. E. M. Smith, from (A.); Oct. 25, 1918. (Hon. Maj.) J. W. Aldridge, from (S.O.); Dec. 23, 1918.

Lieuts. (Hon. Cpts.) to be Actg. Cpts. whilst employed as Cpts.:—R. G. Kitson, from (O.); Sept. 27, 1918. R. S. J. Bond-Andrews, G. W. Rogers; Dec. 1, 1918. W. Bindloss; Jan. 1.

Lieuts. to be Actg. Cpts. whilst employed as Cpts.:—A. E. Chilcott; July 14, 1918. E. M. Gardiner, M.C.; Aug. 8, 1918.

Sec. Lieuts. to be Actg. Cpts. whilst employed as Cpts.:—J. H. Slingsby, from (T.); Oct. 24, 1918. (Hon. Lieut.) L. Miller, from (T.); Dec. 12, 1918.

I. Coombes, J. R. Coultgard, from (T.), (Actg. Lieut.) F. R. T. Pearson from (T.); Jan. 1.

S. H. M. Donaldson (Temp. Capt., Spec. List) is granted a temp. comn. as Capt.; July 24, 1918, with seniority from April 1, 1918. (Substituted for notification in the *Gazette*, Nov. 19, 1918.)

Capt. H. Wild is graded for pay as Lieut. whilst employed as Lieut., from (A. and S.); Oct. 27, 1918.

R. S. J. Bond-Andrews (Temp. Capt., Worc. R.) is granted a temp. comn.

as Lieut., and to be Hon. Capt.; June 24, 1918, with seniority from April 1, 1918.

Lieuts. (A.) to be Lieuts.:—R. M. Anderson; July 29, 1918. H. Morley; Sept. 24, 1918. F. J. Williams; Sept. 30, 1918. J. A. Radcliffe; Oct. 24, 1918. C. D. Taylor; Oct. 25, 1918. A. Sutton-Jones; Nov. 7, 1918. W. Stannard; Nov. 14, 1918. A. C. P. Stephenson; Nov. 20, 1918. J. C. L. Mercer; Nov. 21, 1918. J. Balfour, W. Hurst-Barnes; Nov. 25, 1918. L. J. Mars; Dec. 11, 1918.

Lieut. A. J. Bird to be Lieut., from (K.B.); Sept. 30, 1918.

Lieuts. (O.) to be Lieuts.:—J. R. Orrell; Nov. 20, 1918. C. B. Miller; Nov. 21, 1918. N. Smith; Nov. 27, 1918. I. A. Laing; Jan. 6.

B. Booth (Lieut. and Quar., Gen. List) is granted a temp. comn. as Lieut.; Nov. 12, 1918. (Substituted for notification in the *Gazette*, Nov. 26, 1918.)

Sec. Lieuts. to be Sec. Lieuts., from (A.):—R. B. Wightman; Aug. 22, 1918. R. A. Boxhall; Oct. 11, 1918. J. C. Fairfax; Oct. 26, 1918. (Hon. Lieut.) C. R. Grace; Nov. 18, 1918. S. C. Lambert, F. C. Logan; Nov. 19, 1918. A. J. P. Evans; Nov. 20, 1918. W. Druce; Nov. 22, 1918. R. C. Harley; Nov. 28, 1918. C. Brown; Dec. 10, 1918. S. E. Arridge; Dec. 11, 1918.

Sec. Lieuts. to be Sec. Lieuts., from (O.):—J. Potter; Oct. 31, 1918. G. A. R. Gregory; Nov. 19, 1918. R. S. Southcott; Dec. 3, 1918.

The following are transfd. to unemployed list:—Sec. Lieut. J. Sharpe; Jan. 8. Sec. Lieut. A. S. G. Baker, Lieut. M. F. T. Cleaver, M.C. (R.F.A., Spec. Res.), Sec. Lieut. H. Owen, Sec. Lieut. G. W. Richardson; Jan. 9. Lieut. B. J. A. Claudet, Sec. Lieut. P. Fearnley, Sec. Lieut. J. P. Foxwell, Sec. Lieut. F. E. Gauntlett, Lieut. W. J. T. Mardon (Glouc. R.), Capt. R. C. Wansbrough, Capt. G. L. Watson (West. York. R.); Jan. 10. Sec. Lieut. W. Cox, Sec. Lieut. J. Joy; Jan. 11. Capt. L. M. S. N. Conolly, Lieut. (Actg. Capt.) P. J. Curd, Lieut. Lord G. H. Foley, Sec. Lieut. G. J. Mordaunt, Sec. Lieut. H. V. Porter, Capt. A. E. Taylor; Jan. 12. Sec. Lieut. H. C. O. Jackson, Sec. Lieut. H. T. Stansmore, Sec. Lieut. S. Stevens, Sec. Lieut. T. E. Taylor; Jan. 13. Sec. Lieut. D. J. Ford, Lieut. (Actg. Capt.) G. H. Paulin; Jan. 14. Sec. Lieut. E. E. Armitage, Capt. G. M. Butler, Lieut. J. A. S. Marshall, Capt. (Actg. Maj.) J. E. L. Wrench; Jan. 15. Capt. (Actg. Maj.) E. S. Cripps, Sec. Lieut. C. A. Wilmot; Jan. 16. Capt. E. Philbrick (Temp. Capt., New Armies); Jan. 21.

Capt. J. A. Hutchison relinquishes his comn. on account of ill-health, and is permitted to retain his rank; Jan. 25.

Lieut. H. R. Jaques (Lieut., Staff. R.) relinquishes his comn. on account of ill-health; Jan. 25.

Sec. Lieuts. relinquish their comms. on account of ill-health:—W. Ferrier, J. D. Smart (Midd'x R.) (contracted on active service); Jan. 25.

The notification in the *Gazette* of Aug. 20, 1918, concerning Lieut. S. F. Culver is cancelled.

Technical Branch.

Maj. (Actg. Lieut.-Col.) G. P. Grenfell, D.S.O., retains the actg. rank of Lieut.-Col. while employed as Lieut.-Col. (Grade A), from (S.O.); Dec. 12, 1918.

Capt. (Actg. Maj.) W. W. Tullis retains the actg. rank of Maj. while employed as Maj. (Grade A), from (S.O.); Aug. 4, 1918.

Capt. to be Actg. Maj. while employed as Maj.:—C. R. Fleming Williams (Grade A); July 11, 1918. H. G. Ford, from (Ad.); Sept. 14, 1918.

To be Actg. Capt. while employed as Capt. (Grade A):—Lieut. F. H. M. Macintyre, from (A'shp.); Oct. 7, 1918. Sec. Lieut. R. Gowing; Oct. 10, 1918.

Sec. Lieuts. to be Actg. Capt. while employed as Capt. (Grade B):—(Hon. Lieut.) (Actg. Lieut.) H. M. Ayres; June 1, 1918, to Aug. 25, 1918. (Actg. Lieut.) S. N. Cooke, from (Ad.), J. E. J. Crawford, J. V. Martyn; Sept. 14, 1918.

Sec. Lieut. (Hon. Lieut.) F. Avison to be Actg. Capt. (Grade B) (with pay and allowances of Lieut.) while employed as Capt., from (Ad.); Sept. 19, 1918.

Lieuts. to be Lieuts. (Grade A):—J. M. Musson, from (O.); July 11, 1918. R. A. Fearnley, from (A.); Oct. 25, 1918. P. H. Hunter, from (O.); Dec. 13, 1918.

Sec. Lieuts. to be Actg. Lieuts. while employed as Lieuts. (Grade A):—J. de la M. C. Rowley; Aug. 20, 1918. P. A. B. Dyke; Oct. 10, 1918.

Sec. Lieuts. (Hon. Lieuts.) to be Actg. Lieuts. while employed as Lieuts. (Grade B):—H. M. Ayres; April 1, 1918, to May 31, 1918. J. E. Spickernell; Sept. 14, 1918.

Sec. Lieut. H. A. Castaldini to be Actg. Lieut. while employed as Lieut., from (O.); Dec. 11, 1918.

Sec. Lieut. L. Barwell, to be Lieut. (without pay and allowances of that rank); Jan. 16.

Sec. Lieut. (Ad.) to be Sec. Lieuts. (Grade A):—F. G. Corbett, G. W. Hengh; Jan. 11.

Sec. Lieut. H. A. Fowkes (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lieut. (Grade A); April 1, 1918 (substituted for notification in *Gazette* of Nov. 22, 1918).

Sec. Lieuts. to be Sec. Lieuts. (Grade B), from (Ad.):—A. E. Ainsworth; Nov. 29, 1918. R. C. Handley-Ensor; Dec. 25, 1918.

Sec. Lieut. F. G. Willis to be Sec. Lieut. (Grade B), from (O.); Nov. 10, 1918.

Sec. Lieut. E. H. Hughes to be Sec. Lieut. (Grade B), from (T.); Nov. 28, 1918.

P. W. Bowman is granted a temp. comn. as Sec. Lieut. (Grade B); July 8, 1918.

Maj. W. H. Barff, D.S.O. (Ches. R.) relinquishes his comn. on ceasing to be employed; Jan. 18.

The following are transfd. to unemployed list:—Lieut. C. R. Fry; Jan. 8. Sec. Lieut. J. B. Daniels, Sec. Lieut. W. L. Vining; Jan. 9. Lieut. H. E. Hall (Lieut., Manch. R.), Sec. Lieut. J. N. Hill, Lieut. R. B. Hutchings, Capt. W. A. Ross, Lieut. F. Surgeny; Jan. 10. Lieut. J. R. Cox, Capt. E. P. Curral, Sec. Lieut. A. Morrison, Sec. Lieut. H. W. Richardson, Sec. Lieut. A. B. Starke, Capt. E. L. Taylor; Jan. 11. Lieut. G. J. Briggs; Jan. 12. Sec. Lieut. (Actg. Lieut.) E. F. Cameron, Sec. Lieut. (Hon. Lieut.) V. J. Copestake, M.C., Lieut. E. A. Molyneux, Lieut. G. H. Warneken; Jan. 13. Sec. Lieut. E. P. Bennett, Sec. Lieut. T. W. Esland, Lieut. R. A. Redfern, Sec. Lieut. H. J. Weston, Sec. Lieut. H. Wilkes; Jan. 14. Sec. Lieut. E. B. Addison, Capt. C. Birch, Sec. Lieut. (Actg. Lieut.) S. F. Boam, Sec. Lieut. N. Feather; Jan. 15. Sec. Lieut. F. T. Holmes; Jan. 16.

Lieut.-Col. S. D. A. Grey relinquishes his comn. on account of ill-health, and is permitted to retain his rank; Jan. 25.

Capt. R. H. Grant relinquishes his comn. on account of ill-health, and is permitted to retain his rank; Jan. 25.

Lieut. (Actg. Capt.) E. A. B. Carter (Midd'x R., T.F.) relinquishes his comn. on account of ill-health contracted on active service; Jan. 25.

Sec. Lieuts. relinquish their comms. on account of ill-health, and are permitted to retain their rank:—F. V. Cheshire, P. P. Nicholl; Jan. 25.

The name of William Ernest Seed is as now described, and not William Seed, as in *Gazette*, June 7, 1918, and Oct. 1, 1918.

The notification in *Gazette*, May 17, 1918, concerning Sec. Lieut. G. M. Bell, is cancelled.

Medical Branch (Administrative).

H. W. Boot is granted a temp. comn. as Sec. Lieut.; Nov. 1, 1918.

Memoranda.

R. Loraine, D.S.O., M.C. (late Maj., R.A.F.), is granted the rank of Lieut.-Col.; Dec. 11, 1918.

Capt. L. S. Benson (E. W. Surr. R.) is transfd. to unemployed list, from (S.O.); Jan. 15.

London Gazette, January 18.

The following temporary appointments are made at the Air Ministry:—

Staff Officer, 2nd Class.—(Q.) Capt. (Actg. Maj.) W. G. P. Young, and to retain his actg. rank while so employed; Dec. 26, 1918.

Staff Officer, 3rd Class.—Sec. Lt. (Actg. Lieut.) H. Dawes, and to be Actg. Capt. while so employed; Oct. 4, 1918.

Staff Officer, 2nd Class (Higher Grade).—(P.) Lieut. (Actg. Maj.) J. S. Ruttle, and to retain his actg. rank while so employed; July 6, 1918.

Notification in *Gazette*, Oct. 1, 1918, concerning Lieut. (Actg. Maj.) J. S. Ruttle is cancelled.

Staff Officer, 3rd Class.—Capt. C. J. Marchant, vice Capt. C. A. Brewster-Joske, M.C.; Oct. 6, 1918.

Flying Branch.

Capt. P. G. Horswell to be Actg. Maj. while employed as Maj. (A.); June 6, 1918.

Capt. D. A. Macfie to be graded for purposes of pay as Capt.; May 10, 1918, to July 31, 1918.

Lieuts. to be Actg. Capt. while employed as Capt. (A.):—A. C. Upham; Oct. 9, 1918. B. Rogers; Nov. 1, 1918.

Lieuts. (Ad.) to be Lieuts. (A.):—G. D. Wilson; Dec. 30, 1918. A. D. Martin; Jan. 24.

The following relinquish their comms. on ceasing to be employed:—

Lieut. A. D. Keith (Lieut., Sask. R.); Nov. 18, 1918. Lieut. (Hon. Capt.) L. E. D. Stevens (Capt., C. Ont. R.); Dec. 4, 1918. Lieut. A. S. H. Ryding (Lieut., C. Ont. R.); Dec. 5, 1918. Lieut. G. S. Bushe (Lieut., Quebec R.); Dec. 7, 1918. Sec. Lieut. (Hon. Lieut.) D. H. Burrows (Lieut., Quebec R.); Dec. 7, 1918. Sec. Lieut. (Hon. Lieut.) J. Duncanson (Lieut., Can. M.G.C.), Lieut. J. W. Edwards (Lieut., Can. A.S.C.), Lieut. A. E. Hahn (Lieut., E. Ont. R.), Sec. Lieut. (Hon. Lieut.) F. F. Hutchinson (Lieut., Lord Strathcona's Horse), Lieut. C. C. Langstroth (Lieut., Can. Engrs.), Lieut. L. G. Martin (Lieut., C. Ont. R.), Lieut. (Hon. Capt.) C. W. MacAloney (Capt., Nova Scot. R.); Dec. 9, 1918. Sec. Lieut. (Hon. Lieut.) H. A. Francis (Lieut., Brit. Col. R.), Lieut. S. L. McCleneghan (Lieut., Can. F.A.), Sec. Lieut. (Hon. Lieut.) F. A. White, D.C.M. (Lieut., Manitoba R.); Dec. 10, 1918. Lieut. J. S. W. Mol (Lieut., Can. E.F.), Lieut. D. R. Pattie (Lieut., Brit. Col. R.); Dec. 10, 1918. Sec. Lieut. (Hon. Lieut.) C. St. C. Stayner (Lieut., N. Bruns. R.), Sec. Lieut. (Hon. Lieut.) R. H. Whittaker (Lieut., C. Ont. R.), Lieut. A. Willans (Lieut., Quebec R.); Dec. 12, 1918. Sec. Lieut. (Hon. Lieut.) H. J. Crabtree (Lieut., Sask. R.); Dec. 13, 1918. Sec. Lieut. (Hon. Lieut.) A. H. McLachlan (Lieut., Can. Ry. Serv.), Sec. Lieut. (Hon. Lieut.) E. Shampier (Lieut., Quebec R.); Dec. 14, 1918. Sec. Lieut. (Hon. Lieut.) E. N. Copping (Lieut., Sask. R.), Sec. Lieut. (Hon. Lieut.) T. P. Elder, M.M. (Hon. Lieut., Brit. Col. R.), Sec. Lieut. (Hon. Lieut.) W. J. McMahon (Lieut., Can. For. Corps); Dec. 16, 1918. Lieut. H. Perodeau (Lieut., Quebec R.); Dec. 20, 1918. Lieut. C. N. F. Jeffery Lieut., Manitoba R.), Sec. Lieut. (Hon. Lieut.) T. W. Laybourne, D.C.M. (Lieut., Sask. R.); Jan. 2. Sec. Lieut. (Hon. Lieut.) B. E. Scott (Lieut., Can. F.A.); Jan. 3. Lieut. W. D. Chambers (Lieut., Can. Ry. Serv.); Jan. 5. Sec. Lieut. (Hon. Lieut.) J. T. M. Hill (Lieut., Alberta R.); Jan. 10. Lieut. W. M. Emery (Lieut., Can. Engrs.); Jan. 16.

The following are transferred to unemployed list:—Sec. Lieut. C. D. Parker; Jan. 6. Lieut. (Actg. Capt.) J. E. M. Middleton, M.C.; Jan. 7.

Lieut. J. Adam, Sec. Lieut. F. A. B. Andrews, Capt. W. A. Dunn; Jan. 8.

Lieut. S. Cleobury, Lieut. D. M. Harper, Sec. Lieut. W. A. Rollason; Jan. 9.

Lieut. G. S. Bush, Lieut. F. G. B. Callow, Lieut. R. E. Dangerfield, Lieut. R. W. H. Grasdorff (S. Wales Bord.), Sec. Lieut. W. A. Linnell, Capt. W. E. C. Parry, Lieut. C. P. Porter; Jan. 10. Lieut. E. J. Allman, Sec. Lieut. C. W. Arning, Sec. Lieut. D. E. Cameron, Sec. Lieut. E. Colmer, Sec. Lieut. R. W. A. Watchorn; Jan. 11. Sec. Lieut. C. Mackay, Sec. Lieut. C. G. J. Silcock; Jan. 12. Lieut. H. E. Easton (Lond. R., T.F.), Lieut. A. C. Gill, Lieut. (Actg. Capt.) S. Hay, Sec. Lieut. F. E. B. Jones, Sec. Lieut. W. H. Mitchell, Lieut. S. G. Smith, Sec. Lieut. (Hon. Lieut.) E. G. Symonds, Sec. Lieut. (Hon. Lieut.) H. W. Vernon, Sec. Lieut. (Hon. Lieut.) J. B. Windle; Jan. 13. Lieut. (Hon. Capt.) (Actg. Capt.) C. M. Briscoe-Owen, M.C., Capt. R. G. Clarke, Sec. Lieut. P. C. Drummond, Sec. Lieut. C. B. Gibson, Lieut. (Hon. Capt.) A. H. C. Hope (Sea. Highrs.), Lieut. E. D. Howard, Sec. Lieut. S. G. Massey-Lynch, Capt. C. A. Narbeth, Sec. Lieut. D. C. North, Lieut. (Actg. Capt.) G. H. Plowman (Lieut., R. Innis. Fus.), Lieut. W. Pryor, Capt. T. O. Wood, Sec. Lieut. A. Wragg; Jan. 14. Lieut. (Actg. Capt.) C. C. Banks (R. Welsh Fus.), Lieut. (Hon. Capt.) C. T. Cleaver, M.C., D.F.C., Lieut. K. M. A. Cornford, Sec. Lieut. H. F. B. Duval-Symington, Lieut. G. J. Farmer (Lond. R.), Sec. Lieut. L. P. James, Sec. Lieut. E. E. Jones, Maj. D. M. King (Temp. Maj., Hussars), Sec. Lieut. J. K. Lancaster, Sec. Lieut. J. Lomas, Sec. Lieut. C. S. Noble, Sec. Lieut. L. W. Sellar, Sec. Lieut. E. Tyler; Jan. 15. Maj. J. Bird, O.B.E., Sec. Lieut. F. G. Goodes, Lieut. H. W. Grose, Sec. Lieut. K. M. Guthrie, Lieut. A. H. J. How, Sec. Lieut. J. G. Sands (Norf. R., T.F.), Lieut. J. L. Whitaker, Capt. G. F. W. Zimmer; Jan. 16. Sec. Lieut. A. C. Brown, Lieut. R. C. Fielder, Capt. C. M. Gibson, Capt. E. G. N. Grimbie (Herts R.), Lieut. E. Haigh, Sec. Lieut. R.G.A., S.R.), Sec. Lieut. F. McL. Harrison, Sec. Lieut. (Hon. Lieut.) R. A. Henry (R.G.A., S.R.), Lieut. H. G. D. Parkinson (Lieut., A.S.C.), Capt. E. R. Pennell, D.F.C.; Jan. 17. Sec. Lieut. J. D. Evans, Sec. Lieut. B. A. Greenfield, Lieut. H. E. Watson; Jan. 18. Lieut. (Actg. Capt.) G. B. Bailey, Sec. Lieut. G. Jennings, Lieut. C. A. F. Rogers; Jan. 19. Maj. H. de Havilland, D.S.O., Sec. Lieut. E. R. Hargreaves; Jan. 21. Sec. Lieut. A. R. S. Proctor; Jan. 23. Sec. Lieut. F. A. McCumber; Jan. 24.

Capt. G. N. Martin (Durh. L.I.) relinquishes his comn. on account of ill health contracted on active service, and is permitted to retain his rank; Jan. 29.

The following Lieuts. relinquish their comms. on account of ill-health, and are permitted to retain their rank:—J. H. Bryer (contracted on active service), E. Evans, R. Messulam; Jan. 29.

The following Lieuts. relinquish their comms. on account of ill-health:—T. L. Green, (Hon. Capt.) W. A. Milton (Lieut., R.F.A.) (contracted on active service), A. S. F. Reeves (E. Kent Yeo., T.F.) (contracted on active service), A. W. Sharp (Beds. R., T.F.); Jan. 29.

The following Sec. Lieuts. relinquish their comms. on account of ill-health, and are permitted to retain their rank:—V. Cleaver, W. Eastwood, J. S. Ford, W. C. Gray, J. D. Irvine, F. A. Maples, J. C. J. McDonald (contracted on active service), C. E. Nicely, J. W. Perks (contracted on active service); Jan. 29.

Sec. Lieut. W. Bartley relinquishes his comn. on account of ill-health; Jan. 29.

The notification in *Gazette*, July 19, 1918, concerning E. Vickers is cancelled.

The surname of H. Hutchison is as now described, and not Hutchinson, as in *Gazette*, Sept. 3, 1918.

The notification in *Gazette*, May 31, 1918, concerning Sec. Lieut. W. A. Stead is cancelled.

The notification concerning Sec. Lieut. J. L. Hill in *Gazette*, June 4, 1918, is cancelled.

The notification concerning Sec. Lieut. W. H. Gibson in *Gazette*, June 25, 1918, is cancelled.

The appointment of D. R. Day as Sec. Lieut. (A. and S.) is antedated, with effect from April 2, 1918.

Administrative Branch.

J. S. Ruttle (Lieut., Actg. Capt., attd. E. Kent R.) is granted a temp. commn. as Lieut., and to be Actg. Maj. while employed as Maj., and to be graded for purposes of pay as S.O. 2 (2nd Grade); April 1, 1918.

Capt. J. Williams to be Capt., from (S.O.); Nov. 22, 1918.

To be Actg. Capt. while employed as Capt.:—Lieut. J. Edwards, from (T.); July 31, 1918. Sec. Lieut. C. S. Thompson; Aug. 30, 1918.

Lieuts. (A.) to be Lieuts.:—J. L. Batstone; June 12, 1918. (Hon. Capt. W. H. Kelley; Aug. 5, 1918. T. Rawsthorne; Aug. 12, 1918. M. A. Hancock; Oct. 1, 1918. D. B. Brayshaw; Oct. 16, 1918. V. R. S. White, M.C.; Nov. 14, 1918. C. W. B. Colling; Nov. 25, 1918. C. McPhail; Dec. 12, 1918.

Lieuts. (K.B.) to be Lieuts.:—G. W. White; Aug. 19, 1918. R. T. Penn; Oct. 14, 1918. A. R. Mann; Oct. 25, 1918. (Actg. Capt.) W. J. Rawson; Nov. 13, 1918, and relinquishes the actg. rank of Capt.

Lieuts. (O.) to be Lieuts.:—W. Sutherland; Oct. 12, 1918. H. S. Murdock; Oct. 28, 1918. A. E. Gill; Nov. 18, 1918. R. C. Vaughan; M.C.; Dec. 30, 1918.

Sec. Lieut. (Hon. Lieut.) A. C. E. F. Kennish to be Actg. Lieut. whilst employed as Lieut.; Oct. 30, 1918. Sec. Lieut. E. Slinger to be Sec. Lieut. from (A.); Oct. 29, 1918.

Sec. Lieuts. to be Sec. Lieuts., from (O.):—C. B. Marshall (and to be Hon.

Lieut.); Nov. 8, 1918. W. B. Walker, D.F.C.; Nov. 14, 1918. H. B. Shaw; Nov. 22, 1918. F. H. Wrigley; Jan. 18.

The following relinquish their commns. on ceasing to be employed:—Sec. Lieut. (Hon. Lieut.) A. R. Evers (Lieut., Can. F.A.); Dec. 9, 1918. Capt. M. P. Rathbone (Hon. Capt., S. Lanc. R., S.R.); Jan. 14.

The following are transferred to unemployed list:—Sec. Lieut. D. Mason; Jan. 8. Sec. Lieut. F. W. Beaumont; Jan. 9. Sec. Lieut. S. Howard, Capt. (Actg. Maj.) P. S. J. Owen; Jan. 10. Sec. Lieut. W. P. Johnson, Sec. Lieut. W. R. Smith; Jan. 12. Sec. Lieut. W. P. Conly, Sec. Lieut. A. J. H. Homan; Jan. 13. Capt. P. J. Bird, Sec. Lieut. P. J. Griffiths, Sec. Lieut. H. J. Youdan; Jan. 14. Sec. Lieut. E. Ackroyd, Lieut. J. E. R. Hyson, Sec. Lieut. H. J. Lee, Sec. Lieut. R. Myer, Sec. Lieut. T. A. Myers; Jan. 15. Sec. Lieut. (Actg. Lieut.) G. Hewlett; Jan. 17. Sec. Lieut. H. G. Gasson; Jan. 18. Capt. W. G. Amos; Jan. 19.

Capt. I. Barrington-White (R. of O) relinquishes his commn. on account of ill-health; Jan. 29.

Sec. Lieut. (Actg. Capt.) H. Rogers relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain the rank of Capt.; Jan. 29.

Lieut. W. De L. Lauder, M.C., relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank; Dec. 21, 1918 (substituted for notification in *Gazette*, Dec. 20, 1918).

Sec. Lieut. S. G. Lane is cashiered by sentence of a General Court-Martial Jan. 9.

The following Sec. Lieuts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. Hirst (contracted on active service), W. Lockwood, G. L. Shaw (contracted on active service); Jan. 29.



“AIRCRAFT PRODUCTION”

In honour of past and present chiefs of the Air Ministry, several of the senior officers of the Aircraft Production Department gave a dinner at Claridge's Hotel, on January 28. The hosts were Lieut.-Cols. B. C. Bartley, R. H. Brand, Ivan Davson and Reiss, Mr. A. C. L. Chorlton and Mr. R. P. Wilson, and the guests included: Lord Weir, Mr. Winston Churchill, Major-General Seely, Lord Colwyn, Major-General Sir F. H. Sykes, Sir James Stevenson, Sir Stephenson Kent, Sir Arthur Duckham, Major-General Sir Godfrey Paine, Sir Phillip Henriques, Major Baird, M.P., Major-General Ellington, Brig.-General Alexander, and Brig.-General R. M. Groves.

Mr. Winston Churchill, in replying to the toast of “The Army,” said it was altogether an unexpected fact to the British nation that they could produce a great Army. They always were sure they had a great Navy. They always were confident that if the sportsmanship of their nation were required to be directed into a mechanical channel they could master the air. But if there was one thing of all others which they were quite unprepared to believe they could achieve, it was the production of a gigantic Army, marching in triumph through the capitals of Europe.

Lord Weir, in responding to the toast of “The Air,” said he noticed that the proposer of this toast was uniformly and invariably most appreciative of the R.A.F., but, as a rule, said very little indeed of the Air Ministry. In Parliament and in the Press the R.A.F. was invariably portrayed as a favourite, while the Air Ministry was portrayed as a seething riot of inefficiency, and as containing a lot of incompetent aeroplane designers, a division of useless and obstructive inspectors, and an army corps of amateur production officers. The real truth was this—that all these alleged incompetents were not domiciled in the Hotel Cecil at all, but eked out a miserable existence in Kingsway, under the Ministry of Munitions. However, speaking seriously, he thought they might measure the value of this criticism in inverse ratio to the ignorance of the critics. In war time the standard of judgment could only be that of result, and in this case the enemy had every reason strongly to differ from the critics. He had been, and hoped ever to be, very proud indeed of the entire R.A.F. In its organisation and operations it embodied everything characteristic of the youth of the British Empire in every sphere of human endeavour—the courage, skill, and endurance of its pilots and of the observers, the energy, capacity, and resourcefulness of its field commanders, the enterprise, technical skill, and adaptability of its technical and supply officers. It did not lack the fallibility of human nature, but for every failure it had a thousand successes. The greatest pride, perhaps, of the R.A.F. was that it earned its place in the eyes of the nation to rank with the two greatest Services the world has ever seen, the British Navy and the British Army. On behalf of the R.A.F., he desired to pay a lasting and a generous tribute to the Ministry of Munitions for the magnificent way in which at all times it had met the requirements of the force. By standards of test, of criticism, and of results, the Ministry of Munitions emerged from the test as the greatest example of State organisation ever carried through in any country.

As regards administration, the flying services of this country had been, he would say, the stormy petrel of the different war Governments. They had seen many changes and had undergone many vicissitudes. Some of the changes

might have been symptomatic of Mr. Dooley's declaration that “Progress must be achieved, whether it is wanted or not.” The position as to the future was further complicated by the advent of civil aviation, and probably still further changes were imminent in the organisation. As one seeing the matter from outside, he thought that so long as the new arrangements were conceived by all in the same spirit of kindly co-operation as in the past, and departmental jealousies were subordinated to the real needs of the development of aviation, then the wonderful traditions of the British flying services, won at such cost in the lives of our young heroes, would be well and honourably maintained.

General Brancker, replying to the toast of “Civil Aviation,” said he had a firm conviction it was bound to be a great success, and a great asset in the British Empire, possibly the greatest asset the Empire ever had. At present the spirit of optimism was high. The British public thought that the moment peace was signed and the conservative and tiresome Air Ministry removed the embargo on long flights, they would be able to fly to India, America and Australia. They would not, and he was afraid there would come a time—he hoped it would be long deferred—when there would be considerable criticism, loss of confidence, and, possibly, financial failure. But he would strike a note of warning—we must go steadily. Commercial aviation was very much in the position that warlike aviation was in four years ago, and we had got to go slowly and steadily, and build it up through infinite labour and very careful organisation. This was a cramped, uncomfortable little country, and was cursed with the most accursed weather in the world. But we had infinite possibilities in the other direction—we had a world-wide Empire, and most of our oversea Dominions had wonderful climates and undeveloped country, which were just the sort of conditions under which aviation would be really successful.

In the future, our air-borne commerce would supplement sea-borne commerce, and when the sparrows of to-day blossomed out into the wonderful eagles of the future, he thought that the air-borne commerce would provide a link between us and our brothers overseas, surer and more invulnerable than ever our sea-borne commerce was before. He believed that at the Peace Conference it had been decided that there was to be a League of Nations, which meant disarmament generally. He did not know how far, but there was to be a great measure of disarmament. So far as aviation went, it probably affected us more than any other European nation, because the other nations had big countries to plane, and they are more or less centralised and self-contained. Therefore, their commercial aviation would be a real asset to them, because the aircraft which they had flying on their mail routes and passenger routes would be readily available. England is differently situated. It is a little island on the edge of Europe. So the greater proportion of our commercial aircraft with which we had to face the problem of war in the future would be probably far away from us and unavailable, and, therefore, if we took disarmament literally, we should be in a worse position probably than any other European Continental Power. Therefore, it seemed to him, that we, above all other people in Europe, should try to maintain in spite of the League of Nations, a really efficient Air Force on a war footing, or more or less available at a moment's notice if war threatened.

REPATRIATED

The following R.F.C. officers who were prisoners of war in Germany have been released, and have arrived in England. Where an officer was seconded his original unit is indicated in brackets:—

Published January 17.

Kelly, Sec. Lieut. R.
Lacy, Sec. Lieut. J. B.
Latimer, Capt. D., M.C.
Leighton, Lieut. K. A. W.
Lipsett, Sec. Lieut. R. S.
Loudoun, Capt. L. G.
Miller, Sec. Lieut. A. M.
Milne, Sec. Lieut. C. G.
Mitchell, Lieut. G. W.
Partridge, Lieut. A. T.
Porter, Sec. Lieut. A. C.
Powell, Capt. F. G.
Preston, Sec. Lieut. A.
Shedel, Capt. W. G.
Shipman, Lieut. T. T.
Summers, Capt. J. K., M.C.

Tapping, Sec. Lieut. A.
Thorpe, Sec. Lieut. C. E.
Tison, Sec. Lieut. M.
Tratman, Lieut. L. W. D.
Yates, Lieut. J. A.
Yelverton, Sec. Lieut. C. N.
Belliveau, Lieut. A. H. (Can. For. Corps).
Heath, Lieut. E. E. (Cent. Ont. R.).
MacDonald, Lieut. D. A. (Can. For. Corps).
Raymond, Lieut. A. B. (Can. A.S.C.).
Smythe, Lieut. C., M.C. (Can. F.A.).
White, Capt. P. R. (E. Ont. R.).
Zieman, Lieut. J. R. (E. Ont. R.).

Published January 18.

Campbell, Sec. Lieut. J.
Carter, Lieut. G. L.
Daltrey, Lieut. F.
Down, Sec. Lieut. R. T.
Edelston, Lieut. R. H.
Gormley, Lieut. A. J. C.
Guild, Sec. Lieut. C.
Harley, Lieut. V.
Henderson, Sec. Lieut. A. V.
Hughes, Sec. Lieut. R. D.
Hutchinson, Lieut. W. J.
Illingworth, Sec. Lieut. C. F. W.
Johnson, Lieut. F. R.

Kemp, Sec. Lieut. J. E.
Lloyd, Lieut. J. P.
Manley, Lieut. P. S.
Marchant, Lieut. E. A.
McPhee, Lieut. R.
Nuttall, Lieut. J. C.
Pitman, Lieut. R. C.
Richardson, Sec. Lieut. J. B.
Sinclair, Lieut. A. S.
Taylor, Lieut. L. G.
Taylor, Lieut. R. E.
Yerex, Lieut. L.

Published January 20.

Andrew, Lieut. W. L.
Barrie, Sec. Lieut. F.
Barton, Lieut. A. E. S.
Blaxhill, Sec. Lieut. F. H.
Blayney, Sec. Lieut. B. W.
Bollins, Lieut. A. V.
Boughton, Lieut. C. B.
Boulton, Lieut. F. E.
Brockhurst, Sec. Lieut. G. N.
Bull, Lieut. J.
Burns, Lieut. V. L. A.
Capon, Lieut. R. S.
Care, Lieut. C. V.
Clarke, Lieut. H. A.
Clay, Capt. H.
Cowan, Lieut. W. E.
Cross, Lieut. A. S.
Hempsall, Sec. Lieut. H. T.
Hewitt, Lieut. N. D. M.
Holland, Lieut. C. B.
Jennings, Sec. Lieut. E. D.
Kent, Lieut. R. L.
Knapp, Lieut. F. R.
Lane, Lieut. L. C.
Law, Lieut. C. B.
Le Roy, Lieut. H. L.
Lomax, Sec. Lieut. C. N. L.
MacDonald, Lieut. D. P.
Martin, Lieut. A. W.
Nash, Capt. G. E.
Newenham, Sec. Lieut. G. A.
Peat, Lieut. R. W.
Penruddocke, Lieut. N. F.
Phillips, Lieut. A. W.
Phillips, Sec. Lieut. P. L.
Price, Lieut. H. J.
Reece, Lieut. S. B.
Robinson, Sec. Lieut. H. G.
Robson, Lieut. C. C.
Scott, Lieut. W. A.
Scott-Kerr, Lieut. W. F.
Smith, Lieut. J. L.
Stewardson, Lieut. E. A.
Strickland, Lieut. W. A.
Sutton, Lieut. M. F.
Tansley, Lieut. H. E., M.C.
Tempest, Lieut. W. C.
Tidmarsh, Capt. D. M., M.C.

Trattles, Sec. Lieut. R.
Turner-Coles, Lieut. W.
Tylor, Lieut. C. E.
Vick, Lieut. H.
Webster, Lieut. J.
White, Lieut. T. W.
Wilson, Lieut. W. K.
Windrum, Lieut. C.
Winkler, Lieut. W.
Woods, Lieut. M. E.
Zieman, Lieut. J. R.
Bevington, Lieut. R. J. (R.F.A.).
Hammersley, Sec. Lieut. F. J. B. (Middx. R.).
Leighton, Capt. R. T. (Yeo.).
Littlewood, Lieut. S. C. T. (L.N. Lan. R.).
Manch, Lieut. C. H. (R.F.A.).
Mare-Montebault, Lieut. M. J. J. G., M.C. (Yeo.).
Millar, Sec. Lieut. T. S. (R. Scots).
Mitchell, Lieut. A. P. (Middx. R.).
Orr-Ewing, Lieut. A. J. (Yeo.).
Stevenson, Lieut. J. E.
Stuart, Lieut. C. E.
Taylor, Lieut. S. H.
Thompson, Sec. Lieut. S. F. (Suffolk R.).
Tibbets, Sec. Lieut. J. L.
Tinne, Sec. Lieut. H. G.
Turvey, Lieut. A. E.
Waring, Lieut. H. E. A.
Watts, Lieut. W. E.
Whitney, Lieut. R. T.
Winterbotham, Capt. F. W. (Yeo.).
Wischer, Lieut. J. V.
Woolley, Lieut. D. B.
Bowering, Lieut. J. V.
Craig, Lieut. F. C.
Hudson, Capt. F. N., M.C. (Bufs. E. Kent R.).
Humphreys, Capt. G. N., R.F.C.
Kirby, Lieut. H.
McEwan, Capt. J. H. F. (Cam'n. Highrs.).
Pelle, Sec. Lieut. A. H.
Warburton, Lieut. E. D.
Wedgwood, Lieut. F. C. B.

Published January 21.

Cock, Capt. G. H., M.C.
Edelston, Lieut. R. H.
Kent-Jones, Lieut. D. W., R.E.
Newbury, Lieut. G. G.

Norton, Lieut. P. C.
Spearpoint, Lieut. H. G.
Whiteside, Capt. H. S. (Can. M.G.C.).

■ The following officer, who was a prisoner in Austria, has been released, and has arrived in England:—Robertson, Lieut. J. A. M.

The following R.A.F. officers have been repatriated:—

Published January 21.

Baerlein, Sec. Lieut. A. A.
Baynton, Lieut. G. R.
Davies, Sec. Lieut. J. E.
Ferrand, Maj. J. B. P.
Griffith, Sec. Lieut. J. C.
Haughton, Lieut. E. P. O.
Kirby, Sec. Lieut. H.
Lazarus-Barlow, Capt. A. J.
McPherson, Lieut. B.
Seymour, Lieut. L.
Sharpe, Capt. T.

Shipwright, Lieut. A. T.
Steele, Lieut. W.
Waring, Sec. Lieut. H. E. A.
Watt, Lieut. H.
Watts, Sec. Lieut. W. E.
Whitney, Lieut. R. T.
Winterbotham, Capt. F. W.
Wischer, Lieut. J. V.
Woolley, Lieut. D. B.
Wyman, Sec. Lieut. J. B. H.
Young, Capt. J. G.

Published January 22.

Abbott, Lieut. E. D.
Ackers, Lieut. C. H. S.
Alderson, Lieut. A. G. D.
Bourinot, Lieut. A. S.
Briggs, Capt. L. R.

Cahusac, Capt. E. B., M.C.
Chidson, Lieut. M. R.
Clarke, Lieut. T. H.
Cribb, Lieut. A. G.
Davies, Lieut. H. R.

Dilatt, Lieut. E. J.
Gayford, Lieut. D. B.
Gilbert, Lieut. C. G.
Gilmour, Lieut. L. C.
Gordon, Lieut. E. G. S.
Gray, Sec. Lieut. C. G. D.
Green, Lieut. E. G., M.C.
Green, Lieut. W. H.
Holley, Capt. T. G.

Bloomfield, Capt. W. S. R.
Boldison, Lieut. A.
Bronskill, Lieut. F. H.
Bushe, Lieut. J. F.
Chambers, Lieut. W. D.
Chapman, Lieut. J.
Costello, Capt. W. H.
Daniell, Lieut. J. B.
Desbarats, Lieut. E. W.
Dronsfeld, Lieut. S. W.
Du Cray, Lieut. M. J.
Farquharson, Lieut. F. B.
Feremen, Lieut. A. E.
Foster, Lieut. E.
Hamilton, Sec. Lieut. H. D.
Harper, Lieut. S. A., M.C.
Hills, Sec. Lieut. O. M.

Anderson, Lieut. W., M.C.
Birch, Lieut. S.
Butler, Lieut. L.
Cairns, Lieut. J. A.
Collis, Capt. D. P.
Crisp, Lieut. A. E.
Denison, Lieut. N. C.
Dugan, Lieut. H. G.
Furlonger, Lieut. C. A. M.
Goodall, Capt. J. H. H.
Hadriell, Sec. Lieut. G. C. T.
Hamilton, Lieut. W. N.
Handley, Lieut. F. A. W.
Hill, Lieut. T. R. V.
Holden, Lieut. A.
Kirkham, Sec. Lieut. F. J.
Lane, Sec. Lieut. C. W.
Law, Sec. Lieut. E. R.
Lawson, Lieut. R. G.
Lee, Lieut. A. C.
Lees, Lieut. J. C.
Lingard, Lieut. J. R.
Lister-Tibbets, Lieut. J.
Lodge, Lieut. C. F.
MacDonald, Lieut. D. A.

Allabarton, Lieut. S. F.
Barlow, Lieut. A. N.
Bean, Lieut. C. A. S.
Chadwick, Capt. G.
Cornwell, Sec. Lieut. F.
Croft, Lieut. J. C.
Denison, Lieut. E. B.
Dougall, Lieut. C. R.
Gillespie, Lieut. J. W.
Hall, Lieut. N. D.
Hammersley, Lieut. F. J. B.
Henderson, Sec. Lieut. J. F.
Hill, Lieut. R. F.
Hine, Lieut. J. B.

Chambers, Lieut. W. D. (Can. A.S.C.).

Nash, Lieut. F. M.
Newcomb, Lieut. M.
Nobbs, Lieut. C. H. F.
Orr-Ewing, Lieut. A. I.
Parker, Lieut. J. K.
Partington, Lieut. O. J.
Peacock, Sec. Lieut. M. A.
Perry, Sec. Lieut. B. B.
Richards, Sec. Lieut. C. R., M.C.
Richardson, Lieut. R. H.
Rose, Lieut. G. A.
Samuel, Lieut. J. R.
Saward, Lieut. N. C.
Sharp, Capt. C. C.

Chisholm, Capt. J. F.
Cooke, Sec. Lieut. E. A.
Dunlop, Sec. Lieut. G. B.
Eaton, Lieut. C.
Fielding-Clarke, Lieut. A.
French, Lieut. E. C.
French, Lieut. G. S.
Gerson, Lieut. L. M.
Hall, Lieut. R.
Harrison, Lieut. A. H.
Hawkins, Capt. R. H.
Heaver, Sec. Lieut. A. R.
Hillyard, Lieut. V. W. H.
Hudson, Lieut. F. H.
Kidd, Lieut. A. L.
Leach, Lieut. J. M.
McDonald, Lieut. A.

Brown, Lieut. V. R.
Butterworth, Capt. C. H. S.
Clark, Lieut. A. L.
Edwards, Sec. Lieut. G. R.

Hollis, Lieut. J. A.
Kerr, Lieut. C.
Lander, Capt. T. E., M.C.
Long, Lieut. G. R.
Pughe-Evans, Lieut. H.
Richardson, Lieut. D. D.
Taylor, Lieut. W. G. E.
Tulloch, Sec. Lieut. K. E.
Woolliams, Lieut. F. H.

Published January 23.

Hume, Sec. Lieut. R. C.
Joubert de la Ferte, Lieut. J. C.
Littlewood, Lieut. S. C. T.
Logan, Capt. R. A.
Lord, Lieut. T. V.
McLaurin, Lieut. D.
MacLennan, Lieut. J. E.
March, Lieut. C. H.
Matthews, Lieut. F.
Morris, Lieut. V. C.
Pickett, Lieut. A. C.
Raymond, Lieut. A. B.
Roche, Lieut. S.
Russell, Lieut. W. O.
Savory, Lieut. A. J.
Scrivener, Sec. Lieut. H. A.

Published January 24.

McTavish, Lieut. D.
Mather, Lieut. A. S.
Milling, Lieut. H. B.
Mitchell, Capt. A. P.
Moore, Lieut. E. S.
O'Brien, Lieut. C. R.
Paris, Lieut. D. K.
Peers, Lieut. I. A.
Ratcliffe, Lieut. T.
Rogerson, Lieut. H.
Russell, Lieut. D. J.
Schrieber, Lieut. R. T. B.
Shepard, Lieut. T. A.
Sutherland, Lieut. A. M.
Stedman, Lieut. F.
Stewart, Lieut. D. J.
Strange, Lieut. L. A. T.
Tannenbaum, Lieut. H.
Upson, Lieut. R. H.
Wainwright, Sec. Lieut. B. M.
Watson, Lieut. N. T.
Westcott, Lieut. G. F.
Whitlock, Sec. Lieut. H. H.
Wilson, Lieut. F. H.
Worseley, Sec. Lieut. R. S. L.

Published January 25.

Holmes, Lieut. J. D. V.
Humble, Sec. Lieut. T.
Johns, Lieut. R. A. P.
Johnstone, Lieut. J.
Leighton, Capt. R. T.
Lloyd, Lieut. E. A.
McMichael, Lieut. G. B.
Marchand, Sec. Lieut. E. F.
Mare-Montebault, Lieut. M. J. G., M.C.
Matthewson, Lieut. R. W. B.
Maxted, Lieut. O. D.
Millar, Sec. Lieut. T. S.
Moore, Lieut. M.

Canadian Forces.

Chambers, Lieut. W. D. (Can. A.S.C.).

Published January 27.

Sharpe, Lieut. S. A.
Sharpe, Capt. F.
Simon, Lieut. G. P.
Slater, Capt. R. K.
Smith, Lieut. G. M.
Stead, Lieut. G. C.
Stevenson, Lieut. J. G.
Stuart, Lieut. C. E.
Taylor, Lieut. S. H.
Thompson, Lieut. S. F.
Tinne, Sec. Lieut., H. G.
Turvey, Sec. Lieut. A. E.
Vereker, Capt. H. C.

Published January 28.

MacLennan, Lieut. J. C.
Manzer, Capt. R., D.F.C.
Murton, Capt. H. S.
Raymond-Barker, Lieut. A. B.
Rockey, Capt. J. S. N.
Salter, Lieut. H. P.
Saunders, Lieut. L. W.
Shaw, Lieut. G. M.
Shead, Sec. Lieut. M. W.
Southern, Capt. T. M.
Stephenson, Sec. Lieut. G. H.
Stephenson, Lieut. W. S., M.C., D.F.C.
Suneeve, Lieut. F. D.
Thompson, Lieut. F. G.
Thomson, Lieut. J. W.

Published January 29.

Edwards, Lieut. H.
Farmer, Lieut. E. E.
Hinchliffe, Sec. Lieut. H. E.
Humphreys, Capt. G. N.

SIDE-WINDS

CUSTOMERS and friends of Messrs. S. Smith and Sons (M.A.), Ltd., should note that the firm have now obtained temporary offices at 2, Great Western Buildings, 6, Livery Street, Birmingham, opposite Snow Hill Station, and all communications for the Birmingham office should be addressed there for the time being.

ANOTHER little mem. in connection with the recent British altitude record: the magnetos on the Napier Lion engine were made by the British Thomson-Houston Co., Ltd., of Coventry.

FROM the Gosport Aircraft Co., Gosport, we learn that Sir Charles Allom, one of the principals of the firm, is in America, and has opened an office in New York at 19, East Fifty-Second Street, where any inquiries from American friends will receive attention.

AN opportunity occurs, in connection with a well-known firm in London, for an ex-service pilot and old Public School Boy to lecture on the theory of aeronautics. We shall be pleased to send on any letters in this connection addressed to "Ex-Service," care of The Editor.

A HANDY little folder from Barimar, Ltd., 10, Poland Street, London, W.1, contains the information that Barimar cast aluminium number-plates for motor cars may be obtained at pre-War prices, practically while you wait. At any rate, deliveries can, where necessary, be made in four hours at the price of 20s. per pair. The oval G.B. plates cost 9s. 6d. each.

FROM Mr. Percy Talbot, 84, Baker Street, Portman Square, W.1, comes a sample of "Clarocit," a preparation made to

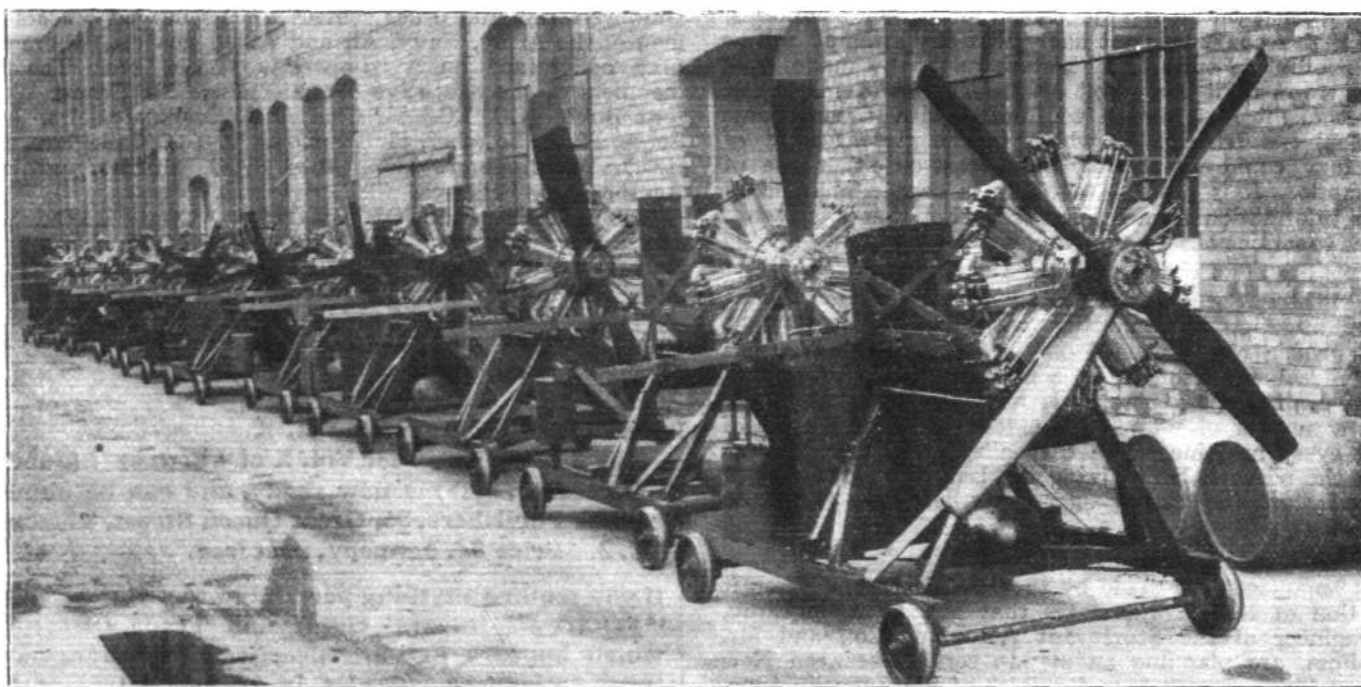
prevent the condensation of steam or the accumulation of raindrops on goggles, windscreens, windows, lenses, etc. "Clarocit" is non-greasy and so may be carried in the pocket without undesirable results. It is made in two sizes—one at 2s. 6d., the other at 5s.

THE Sopwith Aviation Co., Ltd., have now taken possession of their new premises at 67, South Molton Street, W.1, although structural alterations and decorations will not be completed for a week or two. These premises will be the London offices, showrooms and depot for both the Sopwith aviation side and the A.B.C. motor-cycle side of the business.

THE Aircraft Supplies Co., Ltd., have taken up the sale of the Atlas patent petrol filler, a device appealing, by its efficiency and economy, to every user of motor spirit. The Ascol Co. will be pleased to supply particulars to any one who applies to them at 125, Long Acre, W.C.2.

WHILE on the subject of Ascol, reference may be made to the latest issue of the *Ascol News*. Apart from the invaluable information regarding stocks of Ascol specialities, there is an informative article by Mr. G. H. Mansfield on the case for A.G.S. parts, showing the possibilities of using these parts for other things than building aeroplanes. The lighter side is well looked after by Mr. D. W. Thorburn, who in a couple of pages gives us an idea of what the *Ascol News* would be like if Mr. Bottomley edited it.

MR. H. E. SMITH, who is well known in connection with aviation, and who now has his headquarters at 153, Fleet Street, London, E.C.4, has been appointed by the London and Provincial Aviation Co. to look after their publicity work.



Batch of B.R. 1 aero engines turned out by Humber Works at Coventry. The engines are ready for final tests.

Stores for Belgium by Aeroplane

IT was officially announced on January 31 that "a squadron of British military machines has been specially allotted to convey stores to Belgium for the relief of the population there, and will begin operations at once. The machines, which have been specially converted to take stores, will fly daily between Folkestone and Ghent, carrying the essential food and materials so urgently required in Belgium. This will be the first regular commercial air service inaugurated. The machines are of the well-known D.H. 9 type, built by the Aircraft Manufacturing Co., of which Mr. Holt Thomas is a leading member."

From Mr. Holt Thomas we learn that the idea was suggested to him by the Belgian Government, and the arrangements are being carried out by the Aircraft Travel and Transport Service Co. British military machines and military pilots are being utilised, and the cargoes consist of foodstuffs and other merchandise consigned by commercial firms in London to commercial firms in Belgium. We understand that the whole question of Customs will be mutually arranged between the British and Belgian Governments.

Canadian Air Service Equipment Sold

MESSAGES from New York and Ottawa announce that

Mr. Roy U. Conger, an aeroplane manufacturer of Erie, Penn., has purchased, for an unstated sum, the entire aeroplane equipment which the British Government placed at the disposal of Canada during the War. This equipment, valued at £2,000,000, consists of 350 aeroplanes, 700 engines and a great assortment of accessories and spare parts. The sale is said to have been conducted by Sir Joseph Flavelle, of the British Ministry of Munitions, and Mr. Morrow, of the Air Ministry. A sufficient number of machines—Mr. Conger gives the number as 50—engines and spare parts at Camp Borden are stated to have been reserved for the use of the Canadian Government without charge. Mr. Conger has stated that he proposes to use the machines commercially in Canada.

Sale of R.A.F. Equipment

AN opportunity will soon occur, for those who have commercial undertakings in view, to obtain at reasonable prices some useful machines and engines which have done duty with the R.A.F. It is understood that the Air Ministry is preparing a catalogue of some 2,000 aeroplanes and 3,500 engines and large technical stores, which will shortly be offered for sale.

LAW INTELLIGENCE

R.A.F. Claim in the Prize Court

In the Prize Court on January 29, before Lord Sterndale, the President, a claim for £2,750 as prize bounty was heard on a motion on behalf of H.M.S. "Raglan," M.28, "Lizard," "Tigress," "Supernal," and "Anchor of Hope II.," and a squadron of aeroplanes, for the destruction of the German cruiser "Breslau" on January 20, 1918.

It was pointed out by Capt. Maxwell Anderson, R.N., who appeared in support of the motion, that this was the first claim which had been made by officers of H.M. Air Force, and it was made by virtue of section 3, sub-section 2, of the Naval Prize Act, 1918. The crew of the "Breslau" numbered 550 persons, and therefore the bounty claimed, at £5 a head, amounted to £2,750. An affidavit had been sworn by Lord Broome, the senior officer present, in which the following statement appeared:—

In addition to His Majesty's ships there took part in and were present at the destruction of the "Breslau" certain aircraft, a part of the Air Force, embarked on H.M.S. "Ark Royal." The names of the crews, being the pilots and observers of the said aircraft, are as follows:—Capt. Ralph Squire Sorley, Capt. J. W. B. Grigson, Capt. T. R. Hackman, Capt. T. H. Piper, Capt. P. K. Fowler, Capt. C. B. Wincott, Lieut. D. F. Murray, Lieut. F. C. Smith, and Lieut. O. R. Gayford.

Mr. Case, for the Procurator-General, did not oppose the motion.

The President made a decree in the terms of the motion.

The Transatlantic Flight

It appears that while the Air Ministry is not intending actively to compete for the *Daily Mail* £10,000 prize, it is stated from an authoritative source that it will do all that it can to assist a British machine to be the first across. It is pointed out that the chief difficulty is the weather conditions, and on that account it is not likely that any attempt will be made before late spring. The start might be made from either shore in most favourable conditions, but in mid-ocean the pilot might find himself confronted with a very large depression, the existence of which, in the present state of meteorology, could not possibly be forecast on either side of the Atlantic. It is possible to obtain a certain amount of weather information from marine craft, but it is stated that is limited to surface observation, and is not very useful to flying men.

The Wright Patents in France

THE litigation in connection with the French Wright patents, which was suspended on the outbreak of War, has now been revived, according to a message from Paris. The company owning these patents is now pressing their claim against a number of aeroplane builders, demanding a fee of £40 for every machine which they allege is so fitted as to infringe the patents, built during the last five years. It is estimated that the claims aggregate between £1,000,000 and £2,000,000.

New York-Chicago Airship Service

AN announcement made by the Manufacturers' Aircraft Association of New York, states that Mr. J. M. McElroy, chief engineer of the Sturtevant Aeroplane Co., and Mr. Noble Foss, are planning an airship service between New York and Chicago with four dirigibles of the Zeppelin type, costing £100,000. The airships are to be inflated with non-inflammable gas, and it is estimated that the trip, with 25 passengers, will be made within 12 hours.

Each vessel is to be capable of containing 10 men, and sleeping accommodation is to be provided. It is suggested that passengers may be landed by the aid of special cages.

PUBLICATIONS RECEIVED

Calendar, 1919. Strong, Hanbury and Co., Ltd., 196-7, Upper Thames Street, E.C. 4.

Paper and Progress. January, 1919. Strong, Hanbury and Co., 196-7, Upper Thames Street, E.C. 4.

Text Book of Military Aeronautics. By Henry Woodhouse. London: T. Werner Laurie, Ltd., 8, Essex Street, Strand. Price 35s. net.

Five Years in the R.F.C. By Major J. T. B. McCudden, V.C., D.S.O., etc. London: The Aeroplane and General Publishing Co., Ltd., 61, Carey Street, W.C. 2. Price 7s. 6d. net.

Catalogues

Aero Engines. Cosmos Engineering Co., Ltd., Lodge Causeway, Fishponds, Bristol.

Sternol Oils and Greases. Sterns, Ltd., 16, Finsbury Square, London, E.C.2.

COMPANY MATTERS

Whitehead Aircraft (1917), Ltd.

FROM the Whitehead Aircraft (1917), Ltd., we learn that the Earl of Wemyss has been appointed to the chairmanship of this company, and that Mr. C. F. Oldham has joined the board of directors as representative of the ordinary shareholders. We understand that when the accounts are submitted to the adjourned general meeting, to be held on the 17th proximo, the chairman will have a very satisfactory statement to make, both in regard to the past year's achievements and the prospects of the future.

NEW COMPANIES REGISTERED

AIRCRAFT CORPORATION OF AFRICA, LTD.—Capital £600,000, in £1 shares. Manufacturers and repairers of and dealers in aircraft and component parts thereof, hangar, shed and aerodrome proprietors, aerial carriers, &c., in Africa. Solicitor, H. P. Becher, 26, Bedford Row, W.C.1.

AVIATION AND GENERAL INSURANCE CO., LTD., 56, St. James's Street, S.W.—Capital £1,000,000, in £1 shares. Objects: To carry on life assurance, annuity, deferred annuity, accident, sickness, employers' liability and fire insurance and other business, etc. £20,000 has been deposited with the Chancery Court in respect of life assurance and £20,000 in respect of employers' liability insurance, as required by Statute.

BARNESLEY TRANSPORT CO., LTD.—Capital £10,000, in £1 shares. Carriers by sea, land or air, etc. First directors: W. G. England, C. F. Guest, R. B. England and C. A. Towler. Solicitor, H. M. Walker, Barnsley.

BRITISH COUNTY HOMESTEAD ASSOCIATION, 2, Carlton Chambers, 4, Regent Street, S.W.1.—Registered January 25, as a company limited by guarantee (not formed for profit), to acquire all or part of the assets of the British Homesteads Association, to provide homesteads and central training farms and other centres for discharged officers and men of the Army, Navy, Air and Allied services, where they may be trained on a co-operative basis, etc. The first members of the executive committee are Sir Ernest Woodford Birch, K.C.M.G., Sir Charles F. Brickdale, Mrs. J. R. Coote, H. A. Lowther, Sir Desmond D. T. O'Callaghan, Mrs. E. O. Waddingham, Hon. Alice F. O. Murray and Hon. Agatha Lady Fellowes.

COVENTRY VICTOR MOTOR CO., LTD., 137, Cox Street, Coventry.—Capital £2,000, in £1 shares. Engineers, manufacturers of motor accessories, aircraft parts, etc. First directors: T. E. Morton and J. A. Weaver.

PRIMA CO., LTD.—Capital £3,000, in £1 shares. Motor car, aeroplane and vehicle manufacturers, etc. First directors: W. J. George and F. P. Hailey.

Index and Title Page for Vol. X.

The 8-page Index for Vol. X of "FLIGHT" (January to December, 1918) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 8d. per copy, post free.

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages lix, lx, lxi and lxii).

FLIGHT

and The Aircraft Engineer.

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.

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Telephone: Gerrard 1828.

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These rates are subject to any alteration found necessary under war conditions.

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Should any difficulty be experienced in procuring "FLIGHT" from local news-vendors, intending readers can obtain each issue direct from the Publishing Office, by forwarding remittance as above.